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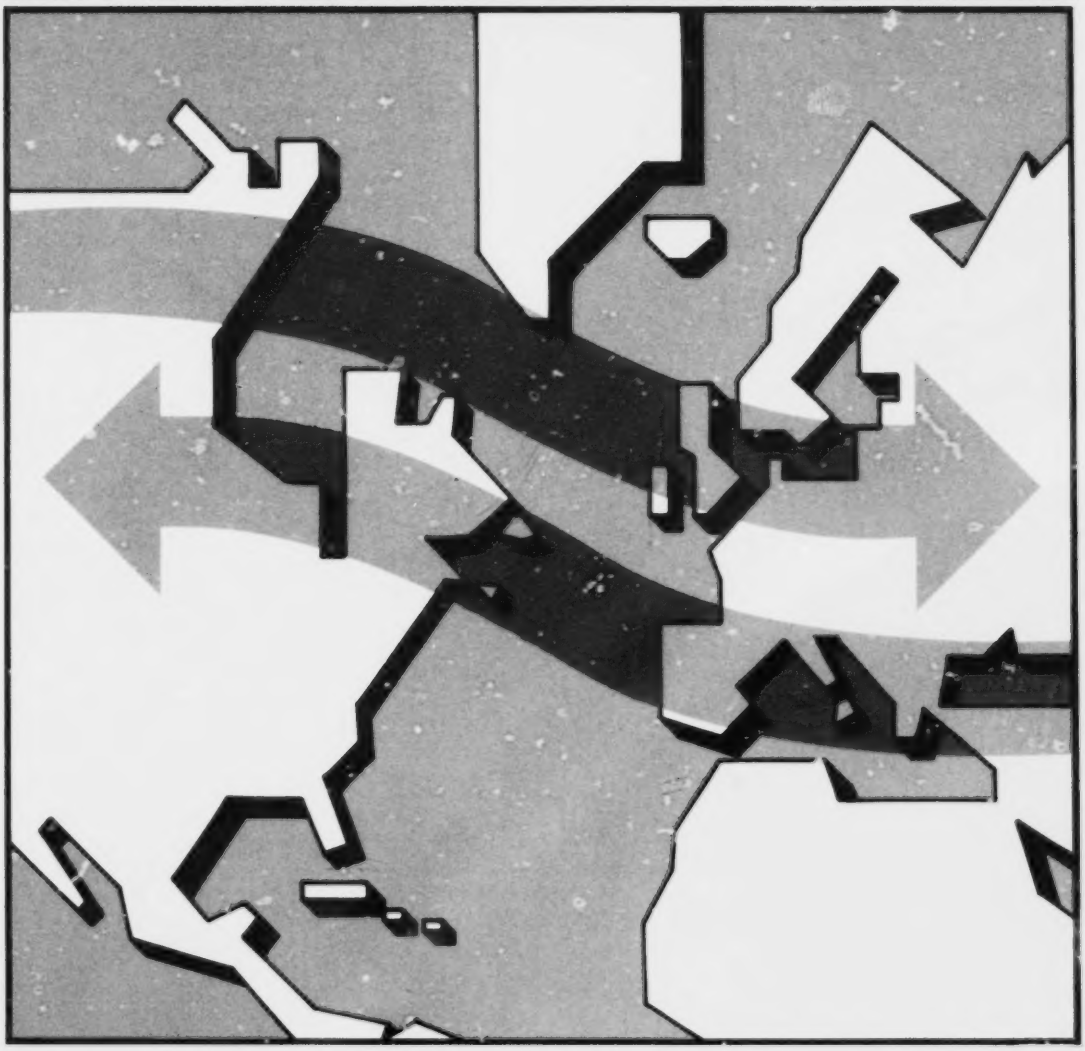
How the Economic Transformations in Europe Will Affect the United States



A CBO STUDY

HOW THE ECONOMIC TRANSFORMATIONS IN EUROPE WILL AFFECT THE UNITED STATES

The Congress of the United States
Congressional Budget Office

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PREFACE

The historic developments in Europe--the fall of communism in Eastern Europe, the unification of Germany, and the move of the countries of the European Community toward economic union--will have economic ramifications in addition to their important political and social effects. This study, requested by the Congressional Joint Economic Committee, focuses on those economic effects, with particular emphasis on possible implications for the United States.

The study was prepared by the Congressional Budget Office's Fiscal Analysis Division and Natural Resources and Commerce Division under the direction of Frederick Ribe and David Montgomery, respectively. Robert Dennis, George Iden, and Elliot Schwartz supervised the analysis. Warwick J. McKibbin, one of the creators of the economic models used in the study and a visiting scholar at CBO this year, served as a consultant. Chapter II, which discusses the integration of the European Community, was prepared by Douglas Hamilton; Chapter III, on the macroeconomic implications of the opening of Eastern Europe, was written by Trevor Alleyne; and Chapter IV, on the macroeconomic aspects of German unification, was written by Victoria Farrell. Stephan Thurman and Matthew Salomon carried out the simulations presented in those chapters with the assistance of Daniel Covitz, Tom Steinbach, and Patricia Wahl. Chapter V, which discusses the microeconomic implications of developments throughout Europe, was prepared by Bruce Arnold, who, along with David Moore, David Trechter, and Philip Webre, wrote the industry case studies in that chapter. Appendix A was prepared by Stephan Thurman and Warwick J. McKibbin. Victoria Farrell wrote Appendix B.

Many people inside and outside CBO contributed valuable comments. The authors wish to thank Lewis Alexander, Jörg Dittmer, Robert Hartman, Gary Hufbauer, Dan Kazmer, Robert Lawrence, Peter Murrell, Lee Price, Wolfgang Reinicke, Stephan-Götz Richter, Jack Rodgers, Sherry Snyder, and Susan Woodward.

Francis Pierce edited the study. Nancy H. Brooks provided editorial assistance. Gwen Coleman, Dorothy Kornegay, Verlinda Lewis, and Donna Wood produced the manuscript. Kathryn Quattrone and Martina Wojak prepared it for publication.

Robert D. Reischauer
Director

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SUMMARY

Important and far-reaching economic changes are now taking place in Europe. The decision to integrate markets in the European Community by 1992, the sudden shift from socialist to free-market principles in Eastern Europe, and the unification of Germany promise to make those economies much more productive and efficient in the long run. But in the near term these developments raise many questions, including the pace of the reforms and their effects on the United States and other countries.

The integration of markets in the European Community (EC92), if carried out according to schedule, promises to get Western Europe moving again after the economy's lackluster performance in the 1980s. The EC reforms will create a market similar in size to that of the United States. The efficiencies associated with a very large market and the additional investment that they stimulate could raise output (gross domestic product) by approximately 6 percent by the end of the 1990s, and make the European Community a more formidable competitor in international trade.

In Eastern Europe the economic and political changes are more far-reaching. The formerly communist countries are engaged in a revolutionary transformation of state-run economies into market-oriented systems requiring radical changes in patterns of economic behavior. The costs of this restructuring will be great, and the chances of failure high. (In many respects, the unification of Germany is a special case of the more general trend toward a market economy in Eastern Europe. The restructuring of the economy in eastern Germany is being carried out on a much more accelerated scale, and with many more resources available, than elsewhere in Eastern Europe.)

These three developments in Europe have in common that they increase the potential for long-run European growth, but they involve short-run costs and risks. Each offers the prospect for a significant long-run improvement in economic efficiency, both through a greater reliance on markets as a means of allocating resources, and through an

expansion of productive capacity. But the short-run costs associated with economic restructuring could be significant as many obsolete plants are closed and unemployment increases. These adjustment costs will be much greater for Eastern Europe than for the European Community because the economic changes there are much more far-reaching.

What will be the effects on the United States of the transformations in Europe? In the case of EC92, the effects will depend heavily on policy decisions made in the European Community, especially regarding fiscal policy and trade policy. For instance, if economic growth is accompanied by a high saving rate, the community's need for imported capital will be lessened, which will mean lower real interest rates in the United States. The overall effect on U.S. international trade and on U.S. output is likely to be modest.

The remaking of the economies of Eastern Europe will require a substantial amount of capital--enough to affect world capital markets and exert upward pressure on world interest rates. This is particularly true in the case of German unification. Germany, with the third largest economy in the world, is prepared to make large industrial and public infrastructure investments in eastern Germany, as well as finance social welfare benefits to ease the pain of transition. Although the other countries of Eastern Europe have needs proportionally as great, they will have much less access to capital, and the effects on world capital markets and interest rates will be correspondingly smaller.

The economic transformations in Europe could have significant effects on particular industries and sectors in the United States. U.S. firms with large European operations should benefit substantially, because they already have a presence in the European Community and because they are in a good position to avoid quotas and other barriers that may be erected against outsiders. U.S. agriculture could also benefit if EC92 causes a reassessment and downward adjustment of currently protectionist agricultural policies in the Community. In the longer run, Eastern Europe could become a world-class agricultural producer--resulting in lower prices for U.S. farmers.

EC92 AND ITS ECONOMIC EFFECTS

EC92 originated in 1985, when the European Community responded to concern about economic stagnation by adopting a comprehensive program to unify the markets of its 12 member countries by 1992. The program includes eliminating or dramatically reducing border and customs controls and installing competitive government procurement practices. In addition, the program involves more uniform tax and regulatory practices, and financial reforms designed to remove restrictions on capital mobility.

The stimulus to the economies of the European Community arises because the members of the Community are 12 relatively small countries, which in the mid-1980s were still sharply divided by a host of diverse regulations, taxes, nontariff barriers, restrictions on capital flows, and impediments to labor mobility. The economies were too small to reap the gains associated with large-scale production and marketing, so commonplace in the United States.

Removing the market barriers among these small economies will make each of them more efficient, for several reasons. First, a larger scale of production reduces unit costs. Second, consumers benefit from more competition for their household budgets, and from more products and services among which to choose. Third, the removal of barriers opens up new investment opportunities, and new opportunities for research and development. Fourth, removing capital restrictions reduces the cost of capital and encourages it to flow where the economic returns are greatest. Finally, removing restrictions on labor mobility encourages skilled workers to move to areas where they can be most productive.

The Congressional Budget Office (CBO) used large-scale, global economic models to assess the macroeconomic effects of EC92 on both the European Community and the United States. CBO's analysis is based on two important assumptions. First, it takes for granted that all of the EC92 reforms will be in place by 1992, as scheduled. In addition, it assumes that the EC92 program will have a substantial and positive effect on productivity of about 4 percent. This assumption

is based on detailed estimates that were made by the staff of the European Commission.

Effects on the European Community

CBO's analysis suggests that, based on the above assumptions, the reform program will raise gross domestic product (GDP) in the EC by approximately 6 percent more than what it would otherwise be by the end of the 1990s, and that it will reduce prices by about 4 percent over the same horizon (see Summary Table 1). Investment will be stimulated and consumption will also receive a boost, in part because consumers are assumed to anticipate a future improvement in their standard of living. The program will be likely to cause the European currencies to depreciate relative to the dollar in the long run--though, in the short run, the effect on exchange rates is ambiguous. The depreciation of European currencies will generate an improvement in the trade balance.

The effects of the program on real interest rates and the trade balance in the EC will depend importantly on the type of fiscal policy adopted, since fiscal policy has a major effect on saving and on the overall use of resources. CBO explored the implications of two alternative assumptions about fiscal policy. Under one assumption, the EC keeps fiscal policy neutral by maintaining its budget deficits at the present proportion of GDP. Alternatively, the EC might follow a fiscal policy promoting high saving if, for example, government spending--rather than deficits--stays at about the same proportion of GDP. In that case, government deficits might fall substantially as the gains from economic growth--in combination with the progressive income taxes in most Western European countries--increase tax revenues rapidly. In CBO's simulation of this alternative, real interest rates initially rise but then decline below what they would otherwise be by the end of the decade because savings become more plentiful. Correspondingly, this high-saving fiscal policy causes the trade balance to improve more than the neutral fiscal policy alternative.

SUMMARY TABLE 1. ESTIMATES OF THE EFFECTS OF EC92 ON EUROPE AND ON THE UNITED STATES, USING TWO WORLD MODELS

	1989	1990	1991	1992	1993	1994	1995	2000
Europe								
Real Gross Domestic Product[a]								
Neutral fiscal policy (MSG)	0.5	0.8	1.6	3.0	4.9	6.9	7.4	6.0
Neutral fiscal policy (INTERMOD)	1.1	1.7	2.2	2.6	3.0	3.5	3.9	5.4
High-saving fiscal policy (MSG)	0.5	0.8	1.5	2.9	4.7	6.6	7.2	6.2
Real Short-Term Interest Rate[b]								
Neutral fiscal policy (MSG)	0.2	0.4	1.3	1.4	1.6	0.6	0.0	0.0
Neutral fiscal policy (INTERMOD)	-0.2	0.3	0.8	1.3	1.6	1.7	1.5	0.4
High-saving fiscal policy (MSG)	0.2	0.7	1.5	1.7	1.8	0.4	-0.3	-0.4
Net Exports[c]								
Neutral fiscal policy (MSG)	0.2	1.4	1.9	8.7	15.8	26.1	30.3	34.5
Neutral fiscal policy (INTERMOD)	-3.9	-14.1	-15.2	-12.7	-6.3	2.5	12.4	48.8
High-saving fiscal policy (MSG)	3.0	3.7	5.8	12.8	21.9	34.9	40.6	42.1
United States								
Real Gross Domestic Product[a]								
Neutral fiscal policy (MSG)	0.0	-0.0	0.0	0.1	0.2	0.3	0.3	0.0
Neutral fiscal policy (INTERMOD)	0.1	0.4	0.3	0.2	0.1	0.0	-0.1	0.2
High-saving fiscal policy (MSG)	0.0	0.0	0.0	0.1	0.2	0.3	0.4	0.1
Real Short-Term Interest Rate[b]								
Neutral fiscal policy (MSG)	0.1	-0.0	-0.0	-0.2	-0.2	-0.0	0.1	0.1
Neutral fiscal policy (INTERMOD)	-0.1	0.0	0.2	0.4	0.5	0.5	0.5	0.2
High-saving fiscal policy (MSG)	0.1	0.1	0.0	-0.0	-0.2	-0.2	-0.3	-0.2
Net Exports[c]								
Neutral fiscal policy (MSG)	0.5	-0.5	-0.5	-2.3	-2.3	-1.8	-1.8	-2.1
Neutral fiscal policy (INTERMOD)	-3.0	4.8	5.1	4.3	1.9	-1.4	-4.6	-9.8
High-saving fiscal policy (MSG)	-1.5	-2.1	-3.3	-3.9	-5.8	-6.0	-6.2	-5.7

SOURCE: Congressional Budget Office.

NOTES: MSG is the McKibbin-Sachs Global Model, developed by Warwick McKibbin of the Reserve Bank of Australia and Jeffrey Sachs of Harvard University. INTERMOD is a world model developed at the Canadian Department of Finance.

Under a neutral fiscal policy, the EC members would keep their budget deficits constant in relation to gross national product. Under a high-saving fiscal policy, they would hold government spending constant in relation to gross domestic product.

a. Percentage difference from baseline.

b. Difference from baseline in percentage points.

c. Difference from baseline in billions of 1989 dollars.

Effects on the United States

EC92's macroeconomic effects on the United States will be felt through capital markets and through international trade--and will to some extent depend on the fiscal and trade policies adopted by the EC. Overall effects on U.S. aggregate output, trade, and interest rates will probably be quite small (see Summary Table 1).

The effects on the United States will be influenced by European fiscal policy. If Europe adopts a high-saving fiscal policy, real short-term U.S. interest rates will soon dip lower. By contrast, if Europe adopts a neutral fiscal policy, real U.S. interest rates will continue to be above baseline. Fiscal policy in Europe will also affect the U.S. trade balance, with a neutral policy producing less deterioration in net U.S. exports.

Another important factor determining the effects on the U.S. economy will be the European stance on trade policy--a factor that is especially difficult to model. If restrictions are raised against non-EC members, the effects on the U.S. trade balance and particular industries could be detrimental. CBO's analysis illustrates the implications of this factor with its "fortress Europe" simulations. The macroeconomic simulations indicate, however, that protectionist policies in Europe would probably only modestly depress gross domestic product for the overall U.S. economy.

THE TRANSFORMATION OF EASTERN EUROPE AND ITS MACROECONOMIC EFFECTS

Transforming the economies of Eastern Europe from state control to free-market capitalism, a task that staggers the imagination, promises to improve the standard of living in a region that has long lagged behind the West. But at best it will take a number of years. The short-run costs, including high unemployment, will be severe--and there are grave risks of failure. The prospects for the different countries of Eastern Europe vary widely, and in several there is little reason for optimism.

Radical economic change became necessary in the late 1980s because the gap in economic performance between East and West had grown so large. There were increasing signs of economic malfunction, such as shortages, rationing, and wholesale pollution. While meaningful statistics on these countries have always been hard to find, estimates suggest that economic growth slowed dramatically during the 1980s.

The transformation of these economies along free-market, capitalist lines will require both a long-run program of reform and a short-run program of stabilization. Reform involves adopting new institutions of private property and transferring assets from state ownership to private hands. Market pricing must replace state-controlled prices and foreign exchange rates. But the shift to market pricing means that prices of some consumer staples will rise sharply relative to wage rates, and that many businesses will not be able to compete when they are stripped of state subsidies. The program of short-run stabilization requires, among other things, controlling inflation and dealing with the sharp increases in unemployment.

The transition from state control to a market system will be especially difficult since it will require replacing much of the capital stock and reorienting the population to accept the dictates of the marketplace. Adding to the difficulty is that some countries of Eastern Europe have large external debts, resembling in this respect the countries of Latin America. On the plus side, Eastern European workers are relatively well educated and skilled by the standards of comparable countries. Western governments are also strongly supporting reform in Eastern Europe, particularly by extending official loans. The pace of economic and political reform varies widely among countries, with Poland and Hungary adopting a "shock therapy" approach and Romania, at the other extreme, showing very little change in its centrally planned economic system.

A major constraint on the restructuring efforts in Eastern Europe is thus the availability of capital. Given the nature of the capital stock, the size of the investment required to bring the typical worker in Eastern Europe up to the standards of Western Europe is very great--according to some estimates, on the order of $70 billion annually for

the next decade. The rate at which new investment can be attracted and absorbed is certainly much lower--probably on the order of $20 billion per year.

The developments in Eastern Europe will affect the U.S. economy primarily through world capital markets, and to a lesser extent through trade flows. In CBO's simulations, the increase in investment in Eastern Europe results in a slight increase in real interest rates in the United States of about 0.3 percentage point for both short- and long-term interest rates. This increase slows investment but increases the trade balance, in both cases by small amounts (see Summary Table 2). The net effect is to reduce real output slightly in the United States. Since the volume of trade between the United States and Eastern Europe is currently very small, the direct effects of this economic transformation on U.S. trade are expected to be minimal--at least for quite some time. If the programs in Eastern Europe are successful, the effects on U.S. trade could, in the long run, become more substantial in view of the economic potential of the region.

SUMMARY TABLE 2. ESTIMATED EFFECTS OF CHANGES IN EASTERN EUROPE ON THE UNITED STATES, USING THE MSG MODEL

	1990	1991	1992	1993	1994	1995	2000
Real Gross Domestic Product[a]	-0.1	0.0	-0.1	-0.2	-0.2	-0.2	-0.1
Real Short-Term Interest Rates[b]	-0.2	0.1	0.2	0.3	0.3	0.3	0.3
Net Exports[c]	2.7	5.5	5.6	5.8	6.0	5.5	5.7

SOURCE: Congressional Budget Office.

NOTE: MSG is the McKibbin-Sachs Global Model, developed by Warwick McKibbin of the Reserve Bank of Australia and Jeffrey Sachs of Harvard University.

a. Percentage difference from baseline.

b. Difference from baseline in percentage points.

c. Difference from baseline in billions of 1989 dollars.

GERMAN UNIFICATION AND ITS MACROECONOMIC EFFECTS

The unification of Germany has economic implications broadly similar to those of the emergence of Eastern Europe, except that their impact will be felt in a shorter period. Unification fundamentally involves reorganizing the relatively backward state-run economy of eastern Germany along the free-market, capitalist lines of the rest of Germany. Capital and modern technology are expected to flow from western to eastern Germany; conversely, labor is expected to continue migrating from east to west, though at a diminished rate compared with that of the last two years. The transformation will be more rapid than elsewhere in Eastern Europe because, in many instances, reform simply means adopting western German institutions and methods. Moreover, the German government with its great resources stands fully behind the efforts to restructure the economy of eastern Germany. By absorbing the external debt of the former German Democratic Republic, the German government has minimized the difficulty of attracting foreign capital into the region.

In two areas, however, German unification encounters obstacles that are not found in the other countries of Eastern Europe. One obstacle is the particular conversion ratios that were used to convert ostmarks to deutsche marks, which had the effect of overpricing the products of eastern Germany. The conversion ratios also mean that labor costs (per unit of output) in eastern Germany are not substantially lower than in western Germany, weakening the outlook for private investment in the capital-starved East. Moreover, currency conversion, once completed, closed off any possibilities for further currency realignment--a possibility that other eastern countries still have. Finally, the wage levels negotiated in eastern Germany may have been too high in view of the low level of labor productivity in the region.

Effects on Germany

The short-term effects of unification on eastern Germany are proving to be painful. The level of output is falling, although it is difficult to determine just how severe the drop in output really is. One sign of

falling output is rising unemployment. Counting workers on reduced work schedules, unemployment now probably exceeds one-quarter of the work force in eastern Germany.

The short-run economic effects on western Germany involve large budget deficits, higher interest rates, a rising exchange rate, and strong demand. Government deficits have bulged because of spending for unemployment compensation and other benefits for displaced workers in the East, as well as for infrastructure investments in the East. These deficits, plus a tight monetary policy, have raised interest rates and caused the deutsche mark to appreciate in value on world currency markets. Even though eastern German consumers are spending cautiously, their purchases are adding to the demand for German goods. Moreover, despite the country's anti-inflation monetary policy, prices are expected to rise more rapidly than before, partly as a result of unification. At the same time, however, the large influx of labor from eastern Germany has put downward pressure on wage levels.

The longer-run outlook is excellent for both major regions of Germany. With similar cultures and well-educated workers, the differences in economic performance and real incomes should greatly diminish in time--though how much time is hard to say. Unification should prove to be a good investment, on economic as well as patriotic grounds. A unified Germany will be a larger market, which should permit economies of scale and specialization. Traditionally, the eastern part of Germany has been known as the breadbasket of Germany, in part because of its good agricultural land.

CBO's quantitative analysis finds unification having a substantial impact on Germany for at least the remainder of this decade. Financial variables are strongly affected--although this conclusion depends in part on German fiscal policy. According to CBO's analysis, German long-term interest rates rise by 1 or 2½ percentage points early in the 1990s, depending on Germany's fiscal policy. Another important implication is that if Germany relies heavily on deficit financing in its fiscal policy, its international current account will show a large, albeit temporary, deterioration. In that case, Germany will be supplying much less saving for the rest of the world. If Germany finances most of

its higher government spending through higher taxes, the effect on its interest rates will be much reduced.

Effects on the United States

The principal implication of German unification for the U.S. economy is the effect it will have on world capital markets. CBO's simulations find real short-term interest rates in the United States about one percentage point above baseline in 1995, if Germany finances its additional government spending for unification with bonds (see Summary Table 3). Alternatively, if taxes are raised to cover these costs, the

SUMMARY TABLE 3. ESTIMATED EFFECTS OF GERMAN UNIFICATION ON THE UNITED STATES, USING THE MSG MODEL

	1990	1991	1992	1993	1994	1995	2000
Real Gross Domestic Product[a]							
Tax-financed spending	0.2	0.1	0.1	0.1	0.1	0.1	0.1
Bond-financed spending	0.1	0.0	-0.2	-0.2	-0.2	-0.2	0.1
Real Short-Term Interest Rates[b]							
Tax-financed spending	0.2	0.2	0.1	0.2	0.2	0.2	0.3
Bond-financed spending	0.1	0.6	0.9	1.0	1.1	1.1	0.8
Real Long-Term Interest Rates[b]							
Tax-financed spending	0.2	0.2	0.2	0.2	0.3	0.3	0.3
Bond-financed spending	0.9	0.9	0.9	0.9	0.9	0.8	0.6
Net Exports[c]							
Tax-financed spending	3.7	2.2	1.1	0.0	-0.6	-1.8	-10.0
Bond-financed spending	13.3	15.9	15.2	13.9	12.0	10.0	-1.4

SOURCE: Congressional Budget Office.

NOTE: MSG is the McKibbin-Sachs Global Model, developed by Warwick McKibbin of the Reserve Bank of Australia and Jeffrey Sachs of Harvard University. CBO examined two alternative fiscal policies. Under tax-financed spending, the German government meets the costs of unification through taxes; under bond-financed spending, it meets the costs by borrowing.

a. Percentage difference from baseline.

b. Difference from baseline in percentage points.

c. Difference from baseline in billions of 1989 dollars.

increase in real interest rates in the United States is much less. In the first few years, German unification leaves U.S. investment lower, net exports higher, and total output little changed.

UNCERTAINTIES IN THE ANALYSIS

The quantitative estimates presented in this study should be regarded as highly tentative. First, there is great uncertainty as to the pace at which these transformations will proceed, especially in the case of the economies of Eastern Europe, but also with respect to German unification and the EC92 program. Second, the statistical data for the Eastern European countries (including eastern Germany) are fragmentary and of questionable worth. Their poor quality severely limits any quantitative analysis of the radical changes taking place in Eastern Europe.

Beyond these problems, the analysis of the economic restructuring that is at the heart of all three of these major European developments pushes the available economic models to their limits. The difficulty is especially great in analyzing changes in exchange rates. Economic restructuring will clearly change--indeed, is intended to change--the trade and capital market fundamentals that underlie exchange rates. But though there is a fairly broad professional consensus about the general outlines of what causes exchange rates to change, economists have not been very successful at forecasting exchange rate movements. The quantitative estimates of exchange rates, as of other economic measures, presented in this report should be regarded as illustrative rather than as precise predictions.

COMBINED MACROECONOMIC EFFECTS ON THE UNITED STATES

Taken together, how are the three major transformations in Europe likely to affect the United States? The simulation results suggest that the combined macroeconomic effects on the United States of the economic transformations in Europe will in general be quite small, but that some of the effects will depend on foreign policy decisions.

Financial markets are likely to be most strongly affected. In particular, both German unification and the transformation of Eastern Europe will make demands on world capital markets, and thus put upward pressure on U.S. interest rates. In combination, the effects of these two developments on world capital markets would be larger than for either one taken separately, although most of the pressure would come from German unification. When these two developments are combined with the EC92 program, there is a possibility of further demands on world capital markets.

An offsetting factor may be fiscal policy. The analysis suggests that world capital markets are quite sensitive to European fiscal choices. If European countries use fiscal policy to promote higher saving, pressures on world capital markets will be considerably lessened. To the extent that developments in Europe put upward pressure on real interest rates in the United States, capital investment in this country, and therefore economic growth, could be reduced. The effect, however, would not be large.

Since the macroeconomic effects on U.S. trade seem to be separately quite limited, in combination they should also be modest, and possibly offsetting. For instance, economic reform in Eastern Europe could cause some improvement in U.S. net exports, while some versions of EC92 could cause a modest deterioration in U.S. net exports.

Other interactions between the three main developments in Europe may occur, some of which would be political. German unification, for example, could lead to delay in EC92. It will be difficult for policymakers to deal with so many changes at once, and the program may also encounter political resistance from groups that would lose at least temporarily from the restructuring.

EFFECTS ON PARTICULAR U.S. INDUSTRIES

Individual sectors of the U.S. economy may feel the effects of European restructuring more strongly than the economy as a whole. Since the disaggregated effects of the changes in Europe on the United States will vary from industry to industry, it is difficult to make general

statements about them; however, there are some common themes. Because U.S. trade with the EC is so large in comparison with that with Eastern Europe, EC92 will have larger effects in the short run, while the effects of the liberalization of Eastern Europe will increase over time.

Microeconomic Effects of EC92

EC92 should give a boost to U.S. production located in the EC, in industries with increasing returns to scale. Such industries include high-tech and other industries that engage in substantial amounts of research and development. To the extent that EC92 and other industry-specific initiatives are successful, they will make those EC producers more competitive relative to their U.S. and other world counterparts.

Several issues related to EC92 and its effects on the United States are common to a number of different industries. These issues include:

- *National quotas.* Some EC countries currently have their own quotas on imports of various products (such as textiles and automobiles) from various countries. The national quotas cannot be maintained after EC92 eliminates border controls. If the quotas were adopted by EC as a whole against non-EC imports, U.S. producers could suffer and U.S. consumers benefit by the diversion to the United States of other countries' exports.

- *Technical standards.* Harmonization of technical standards among EC countries will benefit U.S. exporters and U.S. subsidiaries in the EC, as well as EC firms. This assumes, however, that the EC will not adopt new harmonized technical standards that discriminate against U.S.-made products.

- *Reciprocity.* The United States generally advocates that countries give "national treatment" to foreign-owned firms in their jurisdiction. In some industries, the EC may instead be guided by the principle of reciprocity--that is, treating

foreign firms the same way that the firms' home countries treat EC-owned firms.

- *Rules of origin and local content.* Rules regarding origin and local content can be crafted to have the effect of shutting foreign products out of the EC market.

- *Government procurement.* The EC is liberalizing its government procurement regulations in some areas. Non-EC firms will still be at some disadvantage, but no more so than under corresponding U.S. regulations.

Microeconomic Effects of Eastern European Liberalization and German Unification

What small effects the Eastern European changes may have on U.S. industries in the short run will stem mainly from the need for Eastern Europe to modernize its infrastructure and industries. This investment will create a demand for Western capital goods, but will also raise interest rates, thereby reducing construction and investment in the West and consequently at least partially offsetting the benefit to those industries. The net effect in the short run on industries in the United States is unclear, but it is likely to be small. In the long run, Eastern Europe should have a comparative advantage in labor-intensive industries, making it competitive with some labor-intensive industries in the United States.

Since German unification combines aspects of the changes taking place in both Eastern and Western Europe, its microeconomic effects will reflect them also. The main differences will be that the pace of reconstruction in eastern Germany will be greatly accelerated, and that the long-term comparative advantage in labor-intensive industries in eastern Germany will be substantially less than elsewhere in Eastern Europe.

Some Case Studies

The study examined the effects of the European changes on six U.S. industries.

The Aerospace Industry. EC92 as a whole does not significantly affect the aerospace industry, but a number of ongoing EC programs do. In recent years, efforts have been made, through private-sector mergers, consolidations, and the establishment of consortia, to produce larger firms that can take advantage of economies of scale. Governments belonging to the EC have sponsored joint enterprises such as Airbus and Arianespace. These new integrated firms are providing significant competition for U.S. producers.

While Eastern Europe does not play a major role in the aerospace industry, the Soviet Union does. The Soviet Union has substantial experience in this field and could provide significant competition in the future.

Agriculture. In the short term, none of the changes in Europe is likely to have much effect on U.S. agriculture. Within the EC, German unification may bring financial pressures to change the Common Agricultural Policy, possibly leading to an eventual reduction in subsidy rates that would benefit U.S. farmers. The liberalization of Eastern Europe will not have much effect on the U.S. agricultural sector at first, but over the long term a resurgent Eastern European agriculture could offer significant competition for U.S. farmers.

Automobiles. In the short term, U.S. multinational producers with operations in Europe are well positioned (probably better positioned than EC firms) to take advantage of the unified automobile market that will result from EC92. In the longer term, the automobile market in Eastern Europe has room for substantial growth over the next few decades, and U.S. producers in Europe are as well positioned as any to take advantage of that growth. The benefit to the U.S. domestic car market from added European production by U.S.-owned firms will be small.

Semiconductors. The EC is the largest export market for the U.S. semiconductor industry, and U.S. firms control 40 percent of the market there. The general trend is toward further opening of trade, but some areas are of concern to the United States. One issue involves a change in the rules of origin for semiconductor chips. With respect to U.S. trade with the EC, the net effect of this change on U.S. firms is positive because it results in more U.S.-produced chips being classified as European. However, if adopted by many other countries in the world, it could harm U.S. producers since they do not perform the stage of production used for determing origin under the new rule in many countries outside of the EC. The EC currently sponsors several collaborative research and development efforts that were started in the 1980s.

Steel. None of the changes in Europe is likely to have much effect on the U.S. steel industry and market. The EC and some of the Eastern European countries are currently covered by U.S. quotas that limit exports to the United States. Many of the quotas are currently unfilled because the U.S. industry has regained its competitiveness. The Eastern European steel industry is antiquated by Western standards and would require heavy investment to make it competitive. Historically, steel imports have been less important to the U.S. steel industry's fortunes than have fluctuations in the domestic demand for steel.

Telecommunications. The EC is committed to creating a unified telecommunications system across Europe, and is likely to liberalize its markets in coming years, though gradually and unevenly. To the extent that standards are unified across Europe, U.S. firms should benefit just as EC firms will. U.S. exports may not, however, increase substantially because, among other reasons, the EC market is already open to a large degree.

CHAPTER I

INTRODUCTION

The 1980s were not a good decade for the European economies--either Western or Eastern. In Western Europe, the postwar miracle seemed to falter, at least during the first half of the decade. Economic growth slowed markedly; and unemployment rates, which had been among the lowest in the industrial world, came to be among the highest. Bad as the decade was in Western Europe, it was far worse in the east, where state-run industries had earlier seemed capable of achieving at least modest economic growth. By the end of the decade, the economies of Eastern Europe were performing very poorly, and the political regimes were in disarray.

Three developments--the full economic integration of the European Community (EC) by 1992, the reorientation of Eastern Europe to market principles, and the unification of Germany--now promise to rejuvenate the economies of Europe and to have worldwide repercussions. By increasing the demand for capital, German unification has raised world interest rates substantially. The size of the European Community--in economic terms, approximately that of the United States--means that its further integration under EC92 may have important effects on the U.S. economy. While the economies of Eastern Europe account for a much smaller proportion of the world's production and trade than those of the European Community, their transformation will require capital inflows from the rest of the world.

In the short run, EC92 is likely to be much more significant for U.S. producers and consumers than the other European changes. A substantial portion of U.S. trade (24 percent of exports and 19 percent of imports) is with the EC, whereas U.S. trade with Eastern Europe is insignificant (0.4 percent of U.S. exports and 0.5 percent of imports). Over time, however, trade with Eastern Europe has the potential for strong growth. Whereas the EC's share of U.S. trade is over 50 times that of Eastern Europe, its population is less than 3 times that of

Eastern Europe. In the long run, as per capita gross national product (GNP) in Eastern Europe begins to catch up with that of the developed world, and the political factors that historically have constrained East-West trade disappear, U.S. trade with the region should increase markedly.[1]

ESTIMATING THE EFFECTS

This study uses models of the world economy to develop quantitative estimates of the effects of the European changes. A world model is a computer-based representation of the most important economies in the world, and of the flows of trade and funds among them. Such a model is built of equations, developed using statistical methods, that describe how each of the important sectors of the different national economies interacts with others and responds to outside events. Models like these are in wide use for purposes of studying the worldwide impacts of changes in national economic policies and of structural changes in different economies.

The Congressional Budget Office has used two world models for this study: the McKibbin-Sachs Global Model (MSG), developed by economists Warwick McKibbin of the Reserve Bank of Australia and Jeffrey Sachs of Harvard University; and INTERMOD (version 2.0), developed by a team of economists at the Canadian Department of Finance, basing their work on a similar model developed at the International Monetary Fund.[2] Both models entail detailed representations of the economies of the United States, Japan, Germany, and other major industrialized countries, as well as blocks of smaller industrialized and developing economies. Both models have as a central focus the hypothesis that accurate predictions of some of the future

1. Disparities in levels of economic development among regions may persist for many decades, as they have in the United States. If this fact is any guide, Eastern Europe (with the possible exception of eastern Germany) should not be expected to catch up rapidly with the industrialized countries of Western Europe.

2. For a more detailed description of the models used for the simulations, see Warwick J. McKibbin and Jeffrey Sachs, "The McKibbin-Sachs Global Model," Brookings Discussion Paper in International Economics No. 78 (Washington, D.C.: Brookings Institution, 1989); Guy Meredith, "INTERMOD 2.0 Model Specification and Simulation Properties," Working Paper No. 89-7 (Ottawa: Department of Finance, 1989); and Appendix A of this report.

consequences of economic developments influence the behavior of important actors in an economy. In the real world, these "rational expectations" seem clearly to have played a significant role in shaping the initial economic consequences of developments in Europe.

The modeling work in this study treats each of the three major European developments primarily as an increase in supply. The EC92 program involves an increase in the productivity of each of the factors of production: capital and labor. Events in Eastern European countries were modeled as essentially involving a slow but sustained inflow of capital investment from the rest of the world. The economic unification of Germany was modeled as raising the quantities of capital and labor available to western Germany, as well as changing their mix. (The East German economy before unification was not modeled separately.) The modeling also took account of changes on the demand side of the German economy through higher government spending and deficits.

UNCERTAINTIES ABOUT THE MACROECONOMIC EFFECTS

This study's estimates of macroeconomic effects from the transformations in Europe are uncertain for both political and economic reasons, though the overall implications for the United States may not be significantly affected. The estimates are based on a set of heroic assumptions about the extent and breadth of the reforms that will take place, and about the speed with which they will be carried out. In the case of EC92, the CBO analysis assumes that the reforms will be completed by 1992, but that may be highly optimistic. For one thing, German unification may cause enough strains to slow the progress of the EC92 program. Also, political resistance to the EC92 reforms may intensify for a number of reasons. If carried through fully, the reforms would mean that the countries involved would surrender some of their sovereignty over policies and regulations--a loss that could naturally lead some parties to resist reform. Equally serious may be political opposition from companies and sectors that will lose certain advantages under the EC92 program. Increased competition will mean that some sectors will lose their positions of monopoly and the high incomes that result.

In Eastern Europe, the economic and political uncertainties are even more formidable. CBO's analysis assumes that the reforms will go forward, and that capital will gradually be attracted to the region. But the hardships and difficulties involved could delay needed reforms and cause foreign investors to hesitate. Western Europe, for its part, may be slow to provide the funds, trade concessions, and other types of help on which progress in the east necessarily depends.

Several technical factors also contribute to uncertainty in the estimates contained in this study. CBO's analysis assumes that the EC92 reforms will improve productivity by about four percentage points--an estimate that itself is uncertain. Modeling the effects of major economic restructuring is especially difficult. In addition, the emphasis on analyzing many countries brings to the forefront the need to understand the factors that determine the rates at which different currencies are traded. Unfortunately, existing economic models have not been very successful in predicting or explaining movements in exchange rates.

Particularly severe are the technical problems in estimating the effects of the changes in Eastern Europe. The data are fragmentary and of questionable worth. Moreover, the economic restructuring is so profound that there is little to draw on in building an economic model of the process. There is also great uncertainty about the rate at which Eastern Europe can attract and absorb capital.

Another source of uncertainty is that the estimates do not reflect the oil price shock following Iraq's attack on Kuwait in early August. Since then, oil prices have risen sharply and it is difficult to predict how high they may go, or how long they will remain substantially above levels predicted earlier. The oil shock is adversely affecting the economies of Europe, especially those in Eastern Europe. If oil prices stay high for an extended period, the effect on Eastern Europe would be especially severe, and this study's conclusions would be too optimistic.

For all the uncertainty surrounding events in Europe during the next several years, there is little doubt about this study's main conclusion: that the overall implications for output in the United States are likely to be modest. U.S. trade with Eastern Europe is likely to remain

relatively small; capital flows from this country to the region are likely to be limited; and the effects on U.S. output of developments throughout Europe are likely to partially offset each other, some working to reduce output (especially increases in interest rates), and others working to increase it (through expansion of U.S. net exports to Europe).

SECTORAL EFFECTS ON THE U.S. ECONOMY

In general, large U.S. multinational firms with established affiliates in Europe are more likely to benefit from EC92, and less likely to be hurt by it, than are smaller domestic firms that export to Europe. Similarly, large U.S. firms with operations in Europe are more likely to be able to take advantage of opportunities in Eastern Europe than are smaller domestic exporting firms.[3] Many U.S. firms have substantial and long-established affiliates in Europe. In fact, the sales of U.S. affiliates in Europe are much larger than total U.S. exports to Europe--$525 billion versus $90 billion in 1988.[4] Sales of affiliates benefit Americans only through their profits, whereas all revenues from exports--profits, wages, salaries, and rents--benefit Americans.[5] However, affiliate sales are so large that the profits on them alone--$39 billion in 1988--are nearly 45 percent of total export revenues.[6]

A glance at the leading U.S. imports from and exports to the EC provides an indication of the current status of U.S.-EC competition (see

3. Domestic producers and multinational firms are frequently affected differently by world events. It is well known that the share of U.S. domestic producers in world exports of manufactures declined significantly in the 1960s and 1970s. What is less well known is that the share in those exports of all U.S. firms from all their locations around the world declined much less and that the share of U.S. multinational firms actually increased. See Robert E. Lipsey and Irving B. Kravis, "The Competitive Position of U.S. Manufacturing Firms," National Bureau of Economic Research, Working Paper No. 1557 (February 1985).

4. Department of Commerce, *Survey of Current Business* (June 1990), pp. 41 and 86.

5. In the case of exports of products produced by foreign-owned firms in the United States, the profits do not benefit Americans. Also, in many cases U.S. affiliates in Europe import more of their supplies from the United States than do other European producers.

6. Not all of these profits go to Americans. A particular affiliate might be 90 percent owned by Americans and 10 percent owned by Europeans, in which case only 90 percent of its profits would go to Americans. However, only a small portion of U.S.-controlled affiliates are owned by other nationals, on average.

TABLE 1. LEADING U.S. IMPORTS FROM AND EXPORTS TO THE EUROPEAN COMMUNITY IN 1989 (In millions of dollars)

Commodity	Value
Imports	
Motor Vehicles, Parts, and Accessories	9,678
Electric Machinery, Sound Equipment, Television Equipment, and Parts	4,774
Electronic integrated circuits and microassemblies and parts	645
Organic Chemicals	3,908
Oil (Crude or Otherwise) from Petroleum and Bituminous Minerals	3,422
Aircraft, Spacecraft, and Parts Thereof	3,371
Turbojets, Turbopropellers, and Other Gas Turbines and Parts	2,916
Diamonds and Jewelry of Precious Metal	2,742
Iron and Steel	2,539
Beverages, Spirits, and Vinegar	2,372
Plastics and Articles Thereof	1,592
Total (Including imports not listed above)	84,025
Exports	
Aircraft, Spacecraft, and Parts Thereof	9,219
Electric Machinery, Sound Equipment, Television Equipment, and Parts	7,208
Electronic integrated circuits and microassemblies and parts	1,373
Automatic Data Processing Machines, Magnetic Readers, and So Forth	5,542
Parts for Typewriters and Other Office Machines	4,268
Turbojets, Turbopropellers, and Other Gas Turbines and Parts	3,714
Organic Chemicals	3,602
Coal; Briquettes, Ovoids, and so forth, Manufactured from Coal	1,925
Soybeans	1,639
Medical, Surgical, Dental, and Veterinary Instruments	1,329
Total (Including exports not listed above)	82,524

SOURCE: Department of Commerce.

TABLE 2. LEADING U.S. IMPORTS FROM AND EXPORTS TO EASTERN EUROPE IN 1989 (In millions of dollars)

Commodity	Value
Imports	
Oil (Not Crude) from Petroleum and Bituminous Minerals	202
Furniture, Lamps, Bedding, and so forth	162
Apparel Articles and Accessories, Not Knit	141
Footwear, Gaiters, and so forth, and Parts Thereof	135
Prepared or Preserved Pork	135
Boilers, Machinery, and So Forth, and Parts	121
Iron and Steel	103
Vehicles, Except Railway or Tramway, and Parts Thereof	100
Parts and accessories for motor vehicles	51
Tractors	29
Glass and Glassware	63
Total (Including imports not listed above)	1,969
Exports	
Boilers, Machinery, and so forth, and Parts	214
Aircraft and Aircraft Parts	176
Coal; Briquettes, Ovoids, and so forth, Manufactured from Coal	142
Corn (Maize)	128
Bovine Hides and Skins	74
Vehicles, Except Railway or Tramway, and Parts Thereof	55
Parts and accessories for motor vehicles	23
Tractors	15
Electric Machinery, Sound Equipment, Television Equipment, and Parts	53
Organic Chemicals	50
Total (Including exports not listed above)	1,413

SOURCE: Department of Commerce.

Table 1 on page 6). A substantial surplus of U.S. imports over exports in a given industry suggests that production located within the EC (not necessarily production by EC-owned firms) currently provides significant competition to production located in the United States (not necessarily production by U.S.-owned firms). At the same time, a substantial surplus of exports over imports suggests that it does not.

Similar information concerning U.S. trade with Eastern Europe is given in Table 2 on page 7. The United States imports such goods as oil, furniture, apparel, and footwear from Eastern Europe, and exports machinery and aircraft.

Leading U.S. exports to East Germany in 1989 were grains (corn and barley), machines and mechanical appliances, motorboats, film finishing equipment, and tire molding equipment. Leading imports were petroleum products, urea and ammonium nitrate, printing machinery, fertilizer, and tires.

As the result of the United States granting most-favored-nation status, the removal of COCOM (the Coordinating Committee on Multilateral Export Controls) export restrictions, and the removal of centralized direction of the Eastern European economies, trade should grow and trade patterns change.[7] These developments, in combination with the increased size of the Eastern European economies, could ultimately have significant effects on U.S. industries and consumers.

7. COCOM is a committee through which the United States and its allies coordinate controls on exports of militarily useful products and technologies.

CHAPTER II

ECONOMIC IMPLICATIONS OF THE INTEGRATION OF THE EUROPEAN COMMUNITY

The integration of the European Community by 1992 (EC92) will present new opportunities and challenges to both Europe and the United States. The program is expected to raise European incomes and living standards in the 1990s significantly above what had previously seemed possible. However, large overall effects on the economy of the United States are unlikely.

Although these results represent possibilities, they are subject to uncertainty in three areas. First, no macroeconomic model can fully capture all the complications associated with major economic changes such as EC92. Second, the EC92 program may not be fully enacted or realized as assumed in this study. Third, Europe may be unable to resist political pressures to raise trade barriers against the rest of the world. Such political pressures could become intense when uncompetitive European firms face the harsh realities of the enhanced market.

WHY EUROPE IS ADOPTING THE EC92 PROGRAM

During the mid-1980s, the economic news from the European Community (EC) was not good, and some observers began to see a possibility of economic decline.[1] The signs of trouble were everywhere. While Japan and the United States were enjoying an economic boom, Europe was mired in persistently high rates of unemployment and persistently slow rates of economic growth. Future economic growth

1. For a discussion of the difficulties, see "Europe's Technology Gap," *The Economist* (November 24, 1984). The European Community consists of the following 12 countries: Belgium, France, Denmark, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, and the United Kingdom.

BOX 1
A Brief History of the European Community

The European Community was created by the Treaty of Rome, signed in 1957. Since that time it has been progressively broadened by the admission of additional countries, and deepened by the adoption of additional measures to unify its market. Originally, the EC consisted of Belgium, France, Italy, Luxembourg, the Netherlands, and West Germany. In 1973, the United Kingdom, Ireland, and Denmark joined. Greece joined in 1981, and Spain and Portugal in 1986, for a total of 12 countries.

On January 1, 1959, the first step was taken toward eliminating customs duties between member states and establishing a common external tariff. In January 1962, a Common Agricultural Policy was adopted. On July 1, 1968, all customs duties were eliminated in trade between member states, and a common external tariff was established.

On March 9 and 10, 1979, the European Council launched the European Monetary System. This system established an official currency basket (called the European currency unit or ECU) that is used as a means of settlement between monetary authorities of the EC. This system requires member countries to peg their currencies to the ECU, and permits only small fluctuations in value around the peg. Discussions are currently under way to develop a common currency.

did not look any better. While high-technology and other growth firms were prospering in Japan and the United States, those in Europe seemed unable to gain a significant foothold in world markets.[2]

Although the sources of the "Eurosclerosis" were diverse, many analysts pointed to the large number of structural impediments to free markets and trade within Europe. While the Europeans had long advertised their "common market," and indeed had eliminated tariffs on trade among themselves as early as 1959, the market still had little, if anything, in common about it--the 12 individual markets of the European Community remained separated by a significant number of nontariff barriers. These barriers raised the costs of European produc-

2. For a survey of the problems of the European economies in the mid-1980s, see Robert Lawrence and Charles Schultze, eds., *Barriers to European Growth: A Trans-Atlantic View* (Washington, D.C.: Brookings Institution, 1987).

tion, reduced the competitive pressures in many local markets, and discouraged innovation. Many analysts believed that drastic action was needed if Europe was to become a key player in global markets (see Box 1).

In 1985 the European Commission, which makes all proposals for the Economic Community's legislation and carries out its policies, initiated such action by boldly calling for the complete unification of the 12 European markets by 1992.[3] The Commission set forth almost 300 recommendations aimed at eliminating nearly all of the existing barriers to trade in goods, services, labor, and capital within the EC. Although many of the proposals involved politically sensitive issues, the plan was generally well received within the EC, and many of the specific recommendations have already been adopted. Many observers expect that the European Community will adopt most of the remaining recommendations by the 1992 deadline, although a longer time may be required to put them all into effect.

THE ELEMENTS OF THE EC92 PROGRAM

The European Commission tried to eliminate five types of barriers to trade within Europe: border and customs controls; protectionist government procurement practices; divergent product regulations, standards, and certification procedures; differing business regulations; and differing tax rules. Each of these barriers is described below, followed by a discussion of how they will be eliminated or reduced under the EC92 program.

Border and Customs Controls

Eliminating border controls for all trade within the EC will significantly reduce the costs of intra-EC trade. Transport costs will fall as shippers are freed from paperwork--and waiting in long queues--at the borders. The EC Commission estimates that eliminating these non-

3. See European Commission, *Completing the Internal Market: White Paper from the Commission to the European Council* (Luxembourg, 1985).

tariff barriers will lower the average costs of goods traded within the EC by about 2 percent.[4]

Protectionist Public Procurement

Government procurement practices in Europe generally favor domestic suppliers. Although the EC adopted directives in the 1970s aimed at making public procurement more open, these measures have largely failed, principally because they exempted four major sectors--energy, transport, telecommunications, and water supply. The new recommendations will extend open bidding and award procedures to these excluded sectors and provide new avenues for legal redress for companies facing discrimination.

The potential benefits of open government procurement are significant, in part because the public sector in Europe is quite large, accounting for about 15 percent of Europe's gross domestic product (GDP). The EC Commission estimates that, in the aggregate, opening procurement could lead to cost savings of about half a percent of Europe's GDP. These savings would arise from the lower prices that result when firms in these important sectors are exposed to the brisk winds of competition, and when successful firms are able to take advantage of economies of scale and produce more efficiently.

Divergent Product Regulations, Standards, and Certification Procedures

Harmonizing the different product regulations, standards, and procedures for testing and certification will have a large impact on intra-EC trade in goods.[5] Under pre-EC92 laws, many goods could not be easily sold throughout Europe without specific and detailed alterations to meet the differing technical regulations and standards in each coun-

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4. See Paolo Cecchini, *The European Challenge, 1992: The Challenge of a Single Market* (Brookfield, Vermont: Gower Publishing Company, 1988).

5. Technical regulations are the legal requirements laid down by each country. Technical standards are set by private standardization bodies. For more information on how existing technical rules have limited trade, see Paolo Cecchini, *The European Challenge*.

try. For example, before a German car could be registered in France, its headlights, wiring, and windshield had to be modified. Certification procedures to ensure that products met the minimum standards also differed substantially among the EC countries, leading to unnecessary (and costly) additional testing for firms seeking to serve continental markets.

Divergent Business Regulations

The divergent business regulations in the European Community significantly raise the costs of intra-EC trade--and EC92 aims to harmonize or eliminate most of them. They are a diverse lot, ranging from accounting rules to employment regulations to capital controls.

Accounting rules have differed substantially in European countries, forcing companies that trade across Europe to keep several sets of books. For example, a firm that has a subsidiary in another EC country may keep three sets of books: one for the parent company; one for the subsidiary; and one that harmonizes both. These multiple rules add unnecessary costs, and the EC92 reforms aim to standardize them.

Employment regulations have reduced the ability of firms to relocate workers and of some workers to relocate themselves. Firms have been discouraged from transferring workers to other countries, in part because pension schemes (which are linked to national tax or public insurance programs) are not fully portable. This substantially increases the costs of employment transfers, according to the EC Commission.[6] Professional workers have been discouraged from moving across borders by differing licensing requirements. For example, university degrees or other professional licenses earned in one country were often not recognized by other countries. The EC92 reforms harmonize many of the licensing requirements and rules affecting labor mobility within the EC.

Capital controls that provide significant barriers to financing cross-border investment in the EC have taken a variety of forms. Some

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6. See Paolo Cecchini, *The European Challenge*.

countries have set prohibitively high taxes on income earned abroad; other countries have set outright limits on the amounts domestic residents could invest abroad. Controls on exchange rates in some countries have also limited capital transactions by setting unfavorable rates of exchange on certain types of capital investments abroad. Most of these capital restrictions were eliminated in July 1990; the few remaining ones are slated for removal over the next few years.

Differing Tax Regulations

Harmonizing the different excise and value-added tax (VAT) rates in the 12 countries of the EC, as the EC92 program proposes, will also help to reduce the costs of EC trade. Currently, the VAT and excise tax rates differ greatly among countries: for example, they are 25 percent in Ireland, but only 14 percent in West Germany.[7]

These different tax rates impose both direct and indirect costs on firms. The direct costs involve the paperwork and other administrative red tape that accompanies the importation of goods from low-tax to high-tax countries. Such imports usually trigger payments at the border in order to ensure that domestic firms producing similar goods are not undercut just because of tax differences. The indirect costs result from changes in the behavior of firms that generate inefficiencies. These changes range from hiding profits in high-tax jurisdictions to making an effort to avoid the appearance that such profits have been hidden. Some firms have claimed that the fear of auditing by tax authorities creates incentives to buy items from independent companies in "arm's-length" transactions rather than from lower-cost affiliates.

The Mechanisms for Reducing Costs of Intra-EC Trade

The EC92 program will reduce the barriers to intra-EC trade by three different methods. First, some of the barriers to trade described above

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7. See Richard Cooper, "Europe without Borders," *Brookings Papers on Economic Activity*, vol. 2 (Washington, D.C.: Brookings Institution, 1989), pp. 325-340.

will be eliminated. For example, border checks for intra-EC trade in goods, protectionist procurement practices, and capital controls have been or will be dropped. Second, other barriers to trade--those that arise from divergent health, safety, and environmental regulations--will be reduced by developing EC-wide standards. EC-wide standards will also be set for goods or services that are commonly operating in more than one country, such as telecommunications. Third, and most important, countries will generally be prohibited from stopping the free trade of products that have met the standards of any other country in the EC, provided these products do not violate health, safety, or environmental rules, and, in the case of financial services, meet essential standards.[8]

Although many unnecessary regulations in Europe will be phased out as a result of EC92, and the burdens of *divergent* regulations will be reduced, the overall regulatory stance of Europe in the long run remains uncertain. On one hand, mutual recognition may lead firms to certify products in the country with the least onerous standards, which might ultimately reduce the overall regulatory stance of Europe to the minimum prevailing among the members. On the other hand, the EC-wide regulatory standards may turn out to be stricter than the standards in some of the member countries, which could raise the overall stance. The overall stance could also rise if Europe moved toward greater protectionism. As Chapter V points out, regulatory standards can easily be used to put foreign firms at a competitive disadvantage.

THE FUNDAMENTAL ECONOMIC EFFECT OF EC92

The EC92 program will have a myriad of economic effects, but all of them can be traced to one fundamental change: the EC92 program will boost Europe's productive capacity. It will do so by lowering production costs, encouraging greater competition among firms, stimulating

8. This approach, known as the principle of mutual recognition, was established by the European Court of Justice in the Cassis-de-Dijon case. The court dealt with a German law that prohibited the sale of the French liqueur, Cassis-de-Dijon, on the grounds that Cassis was only 17 percent alcohol--less than the German requirement that it contain at least 32 percent alcohol. The court struck down the German law, and its decision led to the elimination of other technical barriers to trade--such as the Italian pasta laws and the German beer laws, to name a few.

capital investment and the restructuring of inefficient firms, and fostering an environment for innovation and technical advance.

Cost-Efficient Expansion

The EC92 program will allow firms to serve larger markets, thus spreading their fixed costs of production over a larger number of units sold, which in some cases can reduce average costs of production substantially. In the past, European firms were unable to realize such substantial economies of scale because of the fragmented markets they had to serve.[9] The unified European market will be comparable in size with that of the United States.

The larger market will also allow more specialization and help to support more diversity in goods and services for both final consumption and intermediate use. Consumers will have wider choices, while producers will be better able to use more efficient machines.[10]

Competition

Stiffer competition among firms will be good news for consumers. Competition will be fostered because the EC92 program will make it easier for new firms and workers to enter previously protected markets. As the competition proceeds, each firm will struggle to gain and maintain a larger share of the market by lowering its price slightly, which should spark further cuts by rivals and ultimately lead to substantial declines in consumer prices. Such competition will not only force the cost savings generated by EC92 into the hands of consumers, but it will also reduce the existing monopoly profits of firms in previously protected markets. Similar competition among workers will also reduce labor costs. Moreover, this process of entry and competition need not actually occur in order for consumers to benefit. Just the

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9. See Paolo Cecchini, *The European Challenge*.

10. Adam Smith, in *The Wealth of Nations*, was the first to emphasize that larger markets permit more specialization. For a more recent reference, see Paul Romer, "Growth Based on Increasing Returns to Scale Due to Specialization," *American Economic Review*, vol. 77, no. 2 (May 1987), pp. 56-62.

threat of competition may be sufficient to restrain price-setting by firms and workers with market power.[11]

Even though Europe as a whole will benefit from greater competition, some groups will suffer losses and may try to use the political system to slow the pace of integration. Firms and workers in previously protected markets will be made worse off as their profits and wages are reduced by the competition from new entrants. Although many of these firms and workers may be able to meet the new competitive challenges, others may seek protection from competition by pressing their political leaders to slow the pace of economic integration or limit its extent. At present, such political pressures do not appear strong, and most of the EC92 program seems likely to be carried out. But the outlook could change over the next few years.

Industrial Restructuring and New Investment

Increased competition and larger markets will lead to restructuring and new investment in many industries in Europe. Firms will restructure by merging with companies in other EC countries or by acquiring them as subsidiaries. Restructuring is already occurring according to some analysts, who cite the 26 percent rise in mergers and acquisitions since 1987.[12] Although some of this activity is aimed at achieving greater economies of scale, other factors play a role as well. As the case study on semiconductors in Chapter V shows, companies wanting to sell microchips in Europe must acquire production facilities in Europe (or invest in new facilities there) in order to meet the local-content rules. Local-content rules require that a stated minimum percentage of production actually take place in Europe.

Restructuring will include investment in new plants and equipment. The incentives for new investment will be strong for three reasons. First, the returns from new investment will be boosted by elimi-

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11. For more details, see William Baumol, John Panzar, and Robert Willig, *Contestable Markets and the Theory of Market Structure* (New York: Harcourt Brace Jovanovich, Inc., 1982).

12. For more details on merger activity in Europe, see Horst Siebert, "The Single European Market: A Schumpeterian Event?" (paper presented at the Institute for International Economics, October 18, 1989).

nating the barriers to trade, while the costs of borrowing may be lower with the liberalizing of financial markets, as discussed below. Second, investment will be less risky because removing capital controls should help to stabilize some of the European economies.[13] Third, firms that fail to invest could be at a competitive disadvantage against firms that do. Fear of falling behind is often cited as a principal reason for the burst of investment in Europe in the last two years.

New investment will provide two significant "supply-side" boosts to the European economies. First, it will raise the level of capital European workers use and increase their ability to produce.[14] Second, it will facilitate the reallocation of capital to areas and industries that have the highest returns, and, along with the greater mobility of labor, will improve the efficiency of the overall European economy.

Innovation and Long-Run Economic Growth

In the long run, the unified market may have important effects on the rate of innovation and technological advance, which many economists believe to be the major force determining longer-term growth and living standards. Although the mechanisms for stimulating innovation are not well understood, research and development (R&D) is believed to play an important role. Since R&D often involves high fixed costs and large economies of scale, the unification of Europe into a single market is expected to raise the level of R&D significantly. Moreover, that integration could lead to a permanent increase in the growth rate of the European economy.[15]

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13. Eliminating capital controls reduces the likelihood of credit rationing during an economic downturn, and consequently reduces the chance that a minor downturn could become a major one. Credit rationing occurs when firms are unable to get credit (for example, to cover temporary shortfalls between receipts and expenditures) even at higher interest rates. When credit is rationed, firms are often forced to scale back production and lay off workers.

14. The benefits of a larger capital stock will significantly augment the initial supply-side gains. For more details, see Richard Baldwin, "Measuring 1992's Medium-Term Dynamic Effects" (National Bureau of Economic Research, Working Paper No. 3166, November 1989).

15. For more details, see Richard Baldwin, "On the Growth Effects of 1992" (National Bureau of Economic Research, Working Paper No. 3119, September 1989).

Many economists believe that the struggle for markets in a competitive economy plays an important role in stimulating innovation and technological advance.[16] In a competitive environment, firms can increase their shares of the market only if they are able to innovate faster than their rivals. Such pressure serves to break up old patterns and ways of doing things and to create a managerial or organizational environment that is more receptive to change and innovation. Such an environment may be particularly important for managers of multiproduct firms, where knowledge gained in making one product more efficiently can be applied to the manufacture of others.

THE CRUCIAL IMPORTANCE OF EUROPEAN MONETARY AND FISCAL POLICY

European economic policies will be critical in determining how EC92 affects the world economy. If the current policy stance is maintained, European monetary policy will effectively become more restrictive, while European fiscal policy will generate large budget surpluses. As the following section on quantitative analysis shows, the effects of one or another fiscal policy can be as large or larger than the "supply-side" effects emanating from EC92. Alternative (and perhaps more realistic) settings of the policy instruments will have much different economic effects. This section discusses some of the issues involved in setting the policy.

The Outlook for European Monetary Policy

Demand for goods and services should pick up relatively quickly and the private saving rate should fall as European consumers begin to recognize that EC92 raises their expected lifetime income. If European monetary policy does not accommodate this increase, it will effectively become restrictive. Such a policy could cause real interest rates to rise significantly and retard investment and restructuring in Europe. As a

16. For a classic exposition of this view, see Joseph Schumpeter, *Capitalism, Socialism, and Democracy*, 3rd ed. (New York: Harper Colophon Books, 1950), pp. 81-106.

result, European monetary authorities may wish to accommodate the initially higher demand to avoid higher interest rates.

The Outlook for European Fiscal Policy

The increase in income resulting from EC92 will affect European fiscal policy constraints. If government spending as a share of GDP is maintained at recent levels, the European governments could develop large budget surpluses over time. Although such a policy would allow government spending to rise, tax revenues could rise even faster because of the strong growth in taxable incomes that is expected to result from the EC92 program.[17] These budget surpluses would raise the level of European national saving.[18] Because Europe is so large, a policy of this type would raise levels of saving worldwide and reduce world interest rates.

It seems doubtful, however, that European policymakers would permit tax revenue to rise as sharply as a policy of higher saving implies. They would probably demand an alternative fiscal policy that would either include tax reduction or else would spend some of the increased revenue. Although the dimensions of such a policy cannot be known in advance, it is useful to examine an alternative fiscal policy that keeps the budget deficit constant in relation to GDP.

In the CBO simulations presented below, both types of fiscal policy assumptions are examined. The fiscal policy generating large budget surpluses (by holding the share of GDP allocated to government spending at baseline levels) is called the "high-saving" fiscal policy,

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17. This result follows from the fact that taxes in Europe are income-elastic: as incomes rise, so do tax rates.

18. This result follows from the conventional view that government deficits tend to reduce national saving. A minority view holds that deficits do not have this effect because households will alter their saving to offset public dissaving. See Congressional Budget Office, *The Federal Deficit: Does It Measure the Government's Effects on National Saving?* (March 1990), pp. 7-14; and Congressional Budget Office, "Deficits and Interest Rates: Theoretical Issues and Empirical Evidence" (Staff Working Paper, January 1989).

while the policy maintaining a constant deficit-to-GDP ratio is called the "neutral" fiscal policy.[19]

The Outlook for International Policy Coordination

In the long run, the EC92 program will create strong incentives for governments to coordinate their policies more closely. As capital flows more freely across borders, each individual economy will become more sensitive to the policy changes made by neighboring authorities.[20] Such a situation creates incentives for cooperation and coordination.

QUANTITATIVE ASSESSMENT OF THE EFFECTS OF EC92 ON EUROPE

CBO estimates that by the year 2000 the EC92 program is likely to boost real GDP in Europe about 6 percent above what would have otherwise been possible--and thus significantly improve the well-being of European people (see Table 3). The additional growth will come from higher productivity, lower prices, and higher investment.[21] Although the EC92 program will raise real interest rates in the short run (and in fact, may already have done so), its effect on real interest rates in the long run is ambiguous--depending in part on the fiscal stance adopted by the European governments.

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19. The economic effects of a high-saving policy are based upon the results of only the MSG model, because for technical reasons the other model-- INTERMOD--could not be used.

20. See R. Glick and M. Hutchinson, "Economic Integration and Fiscal Policy Transmission: Implications for Europe in 1992 and Beyond," *Economic Review*, Federal Reserve Bank of San Francisco (Spring 1990).

21. Although economists typically assume that increases in economic growth imply increases in societal well-being, it is theoretically possible that economic growth in Europe could make Europe worse off. If the productivity advance occurred primarily in Europe's export sector (that is, in exports to non-European states), then Europe's export prices would fall relative to its import prices, and could more than offset the initial income gain from EC92. Such a deterioration, however, would not occur if the productivity advances from EC92 were in the import-competing sector (including intra-European imports and exports) or balanced between export and import sectors. See A.K. Dixit and V. Norman, *Theory of International Trade: A Dual, General Equilibrium Approach* (Welwyn Herts, Great Britain: James Nisbet and Co., Ltd., and Cambridge, Great Britain: Cambridge University Press, 1980).

TABLE 3. ESTIMATED EFFECTS OF EC92 ON EUROPE, USING TWO WORLD MODELS

	1989	1990	1991	1992	1993	1994
Real Gross Domestic Product[a]						
Neutral fiscal policy (MSG)	0.5	0.8	1.6	3.0	4.9	6.9
Neutral fiscal policy (INTERMOD)	1.1	1.7	2.2	2.6	3.0	3.5
High-saving fiscal policy (MSG)	0.5	0.8	1.5	2.9	4.7	6.6
Consumer Price Index Level[a]						
Neutral fiscal policy (MSG)	0.4	0.0	-0.7	-2.2	-3.8	-5.4
Neutral fiscal policy (INTERMOD)	0.3	0.8	1.1	1.1	0.8	0.1
High-saving fiscal policy (MSG)	0.4	0.2	-0.5	-1.9	-3.6	-5.3
Real Short-Term Interest Rate[b]						
Neutral fiscal policy (MSG)	0.2	0.4	1.3	1.4	1.6	0.6
Neutral fiscal policy (INTERMOD)	-0.2	0.3	0.8	1.3	1.6	1.7
High-saving fiscal policy (MSG)	0.2	0.7	1.5	1.7	1.8	0.4
Real Long-Term Interest Rate[b]						
Neutral fiscal policy (MSG)	0.6	0.5	0.5	0.4	0.2	0.1
Neutral fiscal policy (INTERMOD)	1.0	1.1	1.1	1.1	0.9	0.8
High-saving fiscal policy (MSG)	0.4	0.4	0.3	0.1	-0.1	-0.3
Nominal Effective Exchange Rate[c]						
Neutral fiscal policy (MSG)	-0.8	-0.5	-0.1	0.2	0.6	0.7
Neutral fiscal policy (INTERMOD)	1.7	1.5	1.1	0.4	-0.3	-1.0
High-saving fiscal policy (MSG)	-1.0	-0.8	-0.5	-0.2	0.0	0.1
Real Effective Exchange Rate[c]						
Neutral fiscal policy (MSG)	-0.5	-0.5	-0.9	-2.1	-3.4	-5.0
Neutral fiscal policy (INTERMOD)	1.2	1.2	0.9	0.2	-0.8	-1.9
High-saving fiscal policy (MSG)	-0.7	-0.7	-1.2	-2.4	-3.8	-5.5
Net Exports[d]						
Neutral fiscal policy (MSG)	0.2	1.4	1.9	8.7	15.8	26.1
Neutral fiscal policy (INTERMOD)	-3.9	-14.1	-15.2	-12.7	-6.3	2.5
High-saving fiscal policy (MSG)	3.0	3.7	5.8	12.8	21.9	34.9

(Continued)

SOURCE: Congressional Budget Office.

NOTES: MSG is the McKibbin-Sachs Global Model, developed by Warwick McKibbin of the Reserve Bank of Australia and Jeffrey Sachs of Harvard University. INTERMOD is a world model developed at the Canadian Department of Finance.

Under a neutral fiscal policy, the EC members would keep their budget deficits constant in relation to gross domestic product. Under a high-saving fiscal policy, they would hold government spending constant in relation to gross domestic product.

TABLE 3. Continued

	1995	1996	1997	1998	1999	2000
Real Gross Domestic Product[a]						
Neutral fiscal policy (MSG)	7.4	7.3	7.0	6.6	6.3	6.0
Neutral fiscal policy (INTERMOD)	3.9	4.3	4.7	5.0	5.2	5.4
High-saving fiscal policy (MSG)	7.2	7.2	7.0	6.7	6.4	6.2
Consumer Price Index Level[a]						
Neutral fiscal policy (MSG)	-5.8	-5.6	-5.3	-4.9	-4.6	-4.3
Neutral fiscal policy (INTERMOD)	-0.7	-1.4	-2.1	-2.6	-3.1	-3.4
High-saving fiscal policy (MSG)	-5.8	-5.8	-5.5	-5.1	-4.8	-4.5
Real Short-Term Interest Rate[b]						
Neutral fiscal policy (MSG)	0.0	-0.0	0.1	0.0	0.0	-0.0
Neutral fiscal policy (INTERMOD)	1.5	1.3	1.0	0.8	0.6	0.4
High-saving fiscal policy (MSG)	-0.3	-0.5	-0.6	-0.5	-0.5	-0.4
Real Long-Term Interest Rate[b]						
Neutral fiscal policy (MSG)	0.0	0.0	0.0	0.0	0.0	0.0
Neutral fiscal policy (INTERMOD)	0.7	0.5	0.4	0.3	0.2	0.2
High-saving fiscal policy (MSG)	-0.4	-0.4	-0.3	-0.3	-0.2	-0.2
Nominal Effective Exchange Rate[c]						
Neutral fiscal policy (MSG)	0.6	0.6	0.4	0.2	0.0	-0.1
Neutral fiscal policy (INTERMOD)	-1.6	-2.1	-2.4	-2.6	-2.8	-3.0
High-saving fiscal policy (MSG)	0.0	-0.1	-0.2	-0.3	-0.4	-0.4
Real Effective Exchange Rate[c]						
Neutral fiscal policy (MSG)	-5.5	-5.5	-5.5	-5.5	-5.4	-5.3
Neutral fiscal policy (INTERMOD)	-2.9	-3.8	-4.4	-4.9	-5.3	-5.5
High-saving fiscal policy (MSG)	-6.0	-6.1	-6.0	-5.9	-5.8	-5.6
Net Exports[d]						
Neutral fiscal policy (MSG)	30.3	30.9	31.1	32.4	33.5	34.5
Neutral fiscal policy (INTERMOD)	12.4	21.8	29.9	37.0	43.1	48.8
High-saving fiscal policy (MSG)	40.6	42.4	42.9	42.7	42.3	42.1

a. Percentage difference from baseline.

b. Difference from baseline in percentage points.

c. Foreign currency/home currency.

d. Difference from baseline in billions of 1989 dollars.

CBO developed estimates of these effects from simulations of two large-scale global models, the MSG and INTERMOD models, which are further described in Appendix A. These computer simulations show how the fundamental increase in the productive capacity of the European economy can, in the context of certain assumptions about macroeconomic policy, affect other economic variables, such as prices, interest rates, and real output. The main assumption used in these simulations is that the increment of productivity brought about by the EC92 program builds to about 4 percent by 1993--an amount consistent with estimates developed by the EC Commission of the productivity impacts of the EC92 program on nonfinancial lines of business.[22] The estimates of the EC Commission assume that the EC92 program is fully enacted. If less is enacted however, the gains in productivity will be smaller and the economic effects would then be more muted than reported here.

The simulation results presented in this and subsequent chapters are reported in terms of how the economic outlook will change relative to a baseline that does not contain European restructuring. The baseline itself is not reported, because in CBO's models it does not significantly affect the size of the estimated economic impacts. One way to think of the baseline is as reflecting a continuation of recent trends: without the EC92 program, the EC countries would continue to suffer the high unemployment and relatively slow growth that have plagued them in the 1980s; and the economies of eastern Germany and the rest of Eastern Europe, in the absence of economic restructuring, would continue to stagnate.

The Effect of Higher Productivity on Productive Capacity and Prices

CBO's simulations suggest that the substantial increase in productivity that CBO has assumed for EC92 will lead to an increase in Europe's productive capacity and to lower European prices. In the

22. See Michael Catinat, Eric Donni, and Alexander Italianer, "The Completion of the Internal Market: Results of Macroeconomic Model Simulations," Economic Papers, No. 65, Commission of the European Communities (Brussels, September 1988), pp. 47-48; and Appendix A of this study. The paper cited also included the effects of shocks to the financial sector, but these effects were not included in the present study for technical reasons.

short run, productive capacity increases mostly because of the improved productivity, but in the longer run the increase in output exceeds the initial improvement in productivity because the stock of capital increases. Higher productivity also means that goods and services can be produced at lower prices, a factor that increases real incomes in Europe and also confers a competitive advantage on European manufacturers in international trade. The CBO simulations suggest that, after some delay, consumer prices in Europe are reduced by about 3 percent to 5 percent relative to baseline levels.

Lower European prices may not emerge for some time, however, because of two developments that seem likely to raise prices temporarily over the next several years. The first is that Europeans, anticipating higher future incomes, may increase their spending on goods and services faster than firms expand their output. The second is that the exchange value of European currencies may depreciate, pushing up the cost of imports. The model simulations that CBO has examined differ in their relative emphasis on these factors. Strong demand largely explains the initial price increase in the INTERMOD simulations, while falling European currencies--a phenomenon that this chapter will discuss more fully--account for much of the initial price boost in the MSG model simulations.

The Effect of EC92 on Real Interest Rates in Europe

The changes associated with the EC92 program could increase real interest rates in Europe over the next few years, though in the long run the effect is less certain. Between now and the full implementation of the program in 1993, demands for credit are likely to be relatively strong as Europeans increase their spending in anticipation of future growth in income. These higher demands for credit will work to increase European interest rates, particularly short-term rates, unless the authorities allow an accommodating monetary expansion. The simulations of the MSG and INTERMOD models reported in Table 3, which assume a moderate monetary expansion of 1 percent, predict that real short-term interest rates will peak in the 1991-1993 period at one or two percentage points higher than they would otherwise be. Real long-term rates are likely to rise in anticipation of these increases

in short-term rates. Indeed, the model simulations suggest that real long-term rates may have already been significantly increased in 1990 by the prospect of EC92.

Longer-run effects of EC92 on real interest rates depend on the assumptions made about fiscal policy. Under a neutral fiscal policy, EC92 would not raise or lower government saving as a percentage of gross domestic product, and real interest rates would be essentially unchanged in the long run. If European governments followed a fiscal policy providing high saving--one that allowed the fiscal dividend from higher growth to cut government deficits rather than finance increased spending or lower taxes--national saving in the European economies would be increased and real interest rates would eventually fall. The simulations of the MSG model reported in Table 3 suggest that in the long run the high-saving fiscal policy would reduce real interest rates in Europe by less than half a percentage point.

The real cost of borrowing will fall for another reason not reflected in the simulations--the liberalization of the financial services industry in Europe because of EC92. Such liberalization will reduce the costs of providing these services, and some of the cost saving will be passed forward into lower interest rates to borrowers. In the long run, the reduced spread between borrowing and lending rates (as a result of financial liberalization) will allow the real costs to borrowers to be lower and the real returns to savers to be higher than they would otherwise have been. The models used in this study, however, do not distinguish between interest rates for borrowers and lenders, and thus cannot reflect this source of change in borrowing costs.

The Effect of EC92 on Real Exchange Rates and Real Net Exports

The EC92 program is likely to work to depreciate the European currencies relative to the dollar and lead to trade surpluses in the long run. In the short run, however, the effects of EC92 on exchange rates and trade are ambiguous. The long-run depreciation of European currencies results from two main factors. One is that both the demand for and the supply of European goods increase in Europe; but Europeans also demand more foreign-produced goods. The long-run supply of

foreign goods is unchanged, so this leads to a rise in the relative price of foreign, compared with domestic, goods. Second, higher European incomes increase Europeans' saving and their holdings of all kinds of assets, including loans to other countries. Europeans must increase their current-account trade surplus if they are to increase their holdings of foreign assets. But higher incomes also mean higher imports unless real exchange rates fall. Thus, in order to satisfy the asset demands of Europeans, Europe's exchange rates must eventually depreciate, reducing imports and increasing exports by enough to generate a current-account surplus.

Both of the models that CBO has examined predict a real depreciation of the European currencies of around 5 percent or 6 percent by the end of the decade. While substantial, these predicted movements are not as large as the movements in the exchange rates that occurred during the 1980s. Between 1980 and 1990, the real effective exchange rate of the dollar first appreciated by about 40 percent, in large part because of the growth of U.S. government deficits, and then depreciated to approximately its 1980 level. The real effective exchange rate for the EC as a whole depreciated by about 15 percent during the 1980s (see Figure 1).

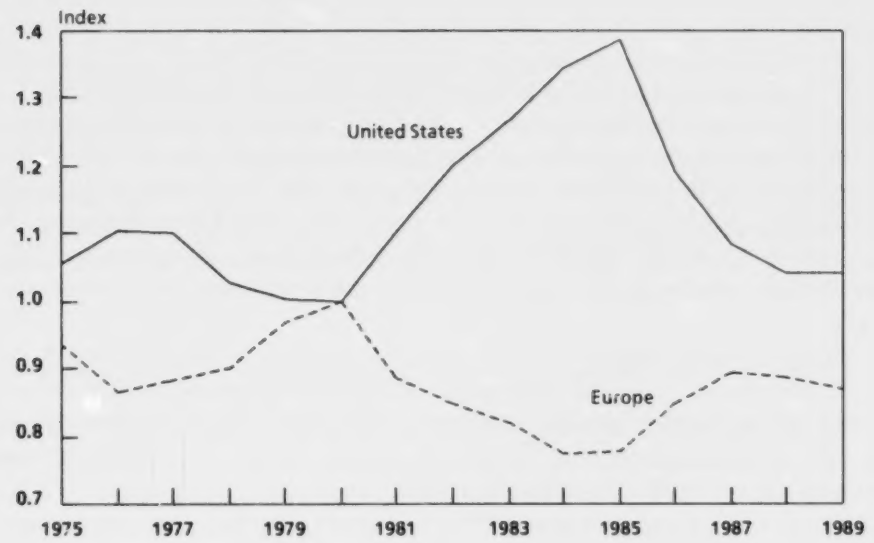
European net exports are expected to rise above baseline by the end of the decade, although the extent of this rise largely depends on the extent of the depreciation of the European currencies predicted by the models. In the simulation that assumes a neutral fiscal policy, the MSG model predicts that real net exports will rise $35 billion by the year 2000, while INTERMOD predicts $49 billion. Relative to GDP, these gains in net exports--and the differences between the models--are small.

In the short run, real European exchange rates are not likely to depreciate as much as in the long run, and indeed they could even appreciate as a result of the EC92 program. Initial increases in real interest rates are likely to be somewhat larger in Europe than in other countries, as a result of the growth of consumption and investment there. Accordingly, interest-rate differentials between countries will initially lead to capital inflows so that the Europeans can borrow in the short run. The movement of these interest differentials is, however,

sensitive to the details of assumptions about monetary and fiscal policy. As a result, the short-run model results described in Table 3--which show in one case a small initial depreciation of European currencies, and in another an appreciation--are highly uncertain.

The short-run outlook for European net exports is also uncertain, although this uncertainty largely reflects uncertainty in the outlook for the real exchange rate. If the real exchange rate depreciates in the short run as it does with the MSG model, real net exports are expected to increase above baseline over the next few years. Alternatively, European net exports could fall in the short run relative to baseline if the real exchange rate initially appreciates as it does in the INTERMOD simulations.

Figure 1.
Real Effective Exchange Rates:
European Community and the United States



SOURCE: Congressional Budget Office, using data from the International Monetary Fund.

Comparisons with Other Studies

CBO's estimates of the long-run effects of EC92 on real GDP and consumer prices in Europe are broadly consistent with those of other studies.[23] The macroeconomic estimates of the European Commission suggest that the EC92 program (under a high-saving policy) will boost real European GDP between 3.2 percent and 5.7 percent above baseline, and reduce consumer prices between 4.5 percent and 7.7 percent below baseline in the medium term.[24] Richard Baldwin of Columbia University estimates a wider range for the effects on real GDP (3 percent to 11 percent above baseline) by allowing for a "growth bonus" arising from a larger European capital stock and assuming additional economies of scale in production.[25] Baldwin argues that his range could be substantially higher if economies of scale are pervasive, although he also notes that "the jury is still out on how important scale economies are at the economywide level."[26] The CBO estimates allow for a "growth bonus" arising from European capital stock, and incorporate economies of scale in the direct effects of EC92. The CBO estimates do not assume that economies of scale have additional indirect effects as well.

QUANTITATIVE ASSESSMENT OF THE EFFECTS OF EC92 ON THE UNITED STATES

The EC92 program, as presently conceived, seems unlikely to have large aggregate implications for the U.S. economy, but, as Chapter V

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23. The other studies did not examine the effects of EC92 on interest rates and exchange rates in Europe, nor did they examine the quantitative effects of EC92 on the United States. The effects of EC92 in the short run given in the other studies are hard to compare because the timing of the productivity gains in the other studies is not explicitly stated and could be quite different from that assumed by CBO. Despite these differences, the CBO estimates are broadly similar for many variables. The major exception is in net exports, where the results appear to be ambiguous and to depend on the model. The EC Commission estimates that Europe's net exports will rise above baseline, confirming the MSG results (and rejecting the INTERMOD findings).

24. See Paolo Cecchini, *The European Challenge*; and Catinat, Donni, and Italianer, "The Completion of the Internal Market."

25. The EC Commission allowed economies of scale arising from the EC92 program to have *direct* effects on productivity. The estimates by Professor Baldwin allow economies of scale to have *indirect* effects as well.

26. See Richard Baldwin, "On the Growth Effects of 1992."

indicates, some industries could be noticeably affected. The simulations of the models show slightly higher output and lower prices (see Table 4). The two main routes of possible influence are through world capital markets, affecting interest rates and exchange rates, and through trade, affecting net exports. Depending on fiscal policy in Europe, real interest rates in the United States could remain about the same or slightly lower. Net exports would also probably be slightly lower in the long run.

Capital Market Links

Because U.S. and European capital markets are closely linked, developments in European markets resonate in U.S. markets. The most evident impact is on the U.S. real exchange rate, the appreciation of which has been discussed already from the point of view of the depreciation of European currencies. The small changes predicted for European real interest rates are likely to have only limited effects on U.S. real interest rates. If European governments follow a relatively neutral fiscal policy, the MSG model predicts virtually no change in U.S. real short-term interest rates. INTERMOD, which shows a much larger increase in European interest rates, also predicts some increase in U.S. real short rates in the mid-1990s, amounting to about half a percentage point. If the European governments follow a fiscal policy promoting high saving, thus adding to world saving, the MSG model predicts that the EC92 program will actually reduce real interest rates in the United States.

Trade Links

In the long run, the tendency of Europe to run larger surpluses, described above, is likely to make the net export balance of the United States slightly worse. In the simulations examined, the effect is quite small, with net exports declining between $2 billion and $10 billion by the end of the decade (in 1989 prices).

How U.S. exports directly to Europe will be affected by EC92 is, however, not clear. Although the macroeconomic simulations indicate

that EC92 raises European spending on imports from the rest of the world (not shown in the tables), a great deal of uncertainty surrounds this result. The effect on import spending is theoretically ambiguous and ultimately depends on the balance of two opposing forces: trade creation and trade diversion. Trade creation is the increase in trade that occurs as higher European incomes lead to larger demands for imports from the rest of the world. Trade diversion is the loss of trade that occurs as European firms become more competitive and more able to displace suppliers from outside the EC.[27] For example, EC92 may make Italian shoes less costly in the EC than shoes from Maine, and thus lead to a decline in imports of these products from the United States. Some quantitative estimates suggest that trade creation may be more important in the bilateral relationship between the United States and Europe than is trade diversion, although these estimates are highly uncertain.[28]

Prices and Incomes

The EC92 program substantially increases productivity and reduces prices in Europe, as described above, and this effect is likely to be felt to some degree in the United States, as lower prices of European exports are passed on to consumers. In addition, the eventual depreciation of European currencies against the dollar will also reduce import costs in the United States. As a result, consumer prices in the United States are likely to be lower eventually. This expected result is apparent in the MSG model results. The INTERMOD results show higher U.S. prices for much of the 1990s, because in that model the dollar initially depreciates and the effect of depreciation on prices takes some time to work through the model; nevertheless, even INTERMOD predicts that EC92 will eventually lower U.S. prices.

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27. Not all U.S. firms, however, will be hurt by trade diversion--in fact, some will gain. In general, large U.S. multinational firms with established affiliates in Europe are more likely to be helped by EC92 and less likely to be hurt than are smaller domestic firms that export to Europe (see Chapter V).

28. According to one estimate, trade creation will expand U.S. exports to the EC by $6.4 billion, while trade diversion will reduce them by $2.0 billion. See Gary C. Hufbauer, *Europe 1992: An American Perspective* (Washington, D.C.: Brookings Institution, 1990), pp. 22-23.

TABLE 4. ESTIMATED EFFECTS OF EC92 ON THE UNITED STATES, USING TWO WORLD MODELS

	1989	1990	1991	1992	1993	1994
Real Gross Domestic Product[a]						
Neutral fiscal policy (MSG)	0.0	-0.0	0.0	0.1	0.2	0.3
Neutral fiscal policy (INTERMOD)	0.1	0.4	0.3	0.2	0.1	0.0
High-saving fiscal policy (MSG)	0.0	0.0	0.0	0.1	0.2	0.3
Consumer Price Index Level[a]						
Neutral fiscal policy (MSG)	0.0	-0.0	-0.1	-0.3	-0.4	-0.4
Neutral fiscal policy (INTERMOD)	0.3	0.5	0.7	0.9	1.1	1.1
High-saving fiscal policy (MSG)	-0.0	-0.1	-0.1	-0.3	-0.5	-0.6
Real Short-Term Interest Rate[b]						
Neutral fiscal policy (MSG)	0.1	-0.0	-0.0	-0.2	-0.2	-0.0
Neutral fiscal policy (INTERMOD)	-0.1	0.0	0.2	0.4	0.5	0.5
High-saving fiscal policy (MSG)	0.1	0.1	0.0	-0.0	-0.2	-0.2
Real Long-Term Interest Rate[b]						
Neutral fiscal policy (MSG)	0.0	0.0	0.0	0.1	0.1	0.1
Neutral fiscal policy (INTERMOD)	0.3	0.4	0.5	0.4	0.4	0.3
High-saving fiscal policy (MSG)	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2
Nominal Effective Exchange Rate[c]						
Neutral fiscal policy (MSG)	0.2	0.2	0.2	0.3	0.3	0.3
Neutral fiscal policy (INTERMOD)	-1.1	-1.0	-0.8	-0.4	-0.1	0.3
High-saving fiscal policy (MSG)	0.5	0.5	0.6	0.7	0.9	1.0
Real Effective Exchange Rate[c]						
Neutral fiscal policy (MSG)	0.1	0.2	0.4	0.9	1.5	2.0
Neutral fiscal policy (INTERMOD)	-1.7	-1.7	-1.4	-0.6	0.3	1.3
High-saving fiscal policy (MSG)	0.4	0.4	0.7	1.2	1.9	2.6
Net Exports[d]						
Neutral fiscal policy (MSG)	0.5	-0.5	-0.5	-2.3	-2.3	-1.8
Neutral fiscal policy (INTERMOD)	-3.0	4.8	5.1	4.3	1.9	-1.4
High-saving fiscal policy (MSG)	-1.5	-2.1	-3.3	-3.9	-5.8	-6.0

(Continued)

SOURCE: Congressional Budget Office.

NOTE: MSG is the McKibbin-Sachs Global Model, developed by Warwick McKibbin of the Reserve Bank of Australia and Jeffrey Sachs of Harvard University. INTERMOD is a world model developed at the Canadian Department of Finance.

Under a neutral saving policy, the EC members would keep their budget deficits constant in relation to gross domestic product. Under a fiscal policy promoting high saving, they would hold government spending constant in relation to gross domestic product.

TABLE 4. Continued

	1995	1996	1997	1998	1999	2000
Real Gross Domestic Product[a]						
Neutral fiscal policy (MSG)	0.3	0.2	0.1	0.0	0.0	0.0
Neutral fiscal policy (INTERMOD)	-0.1	-0.1	0.0	0.0	0.1	0.2
High-saving fiscal policy (MSG)	0.4	0.3	0.3	0.2	0.1	0.1
Consumer Price Index Level[a]						
Neutral fiscal policy (MSG)	-0.3	-0.2	-0.1	-0.0	-0.0	-0.1
Neutral fiscal policy (INTERMOD)	1.0	0.8	0.5	0.3	0.0	-0.1
High-saving fiscal policy (MSG)	-0.7	-0.7	-0.6	-0.5	-0.4	-0.3
Real Short-Term Interest Rate[b]						
Neutral fiscal policy (MSG)	0.1	0.1	0.2	0.2	0.2	0.1
Neutral fiscal policy (INTERMOD)	0.5	0.6	0.6	0.4	0.4	0.2
High-saving fiscal policy (MSG)	-0.3	-0.3	-0.3	-0.3	-0.2	-0.2
Real Long-Term Interest Rate[b]						
Neutral fiscal policy (MSG)	0.1	0.1	0.1	0.1	0.1	0.1
Neutral fiscal policy (INTERMOD)	0.2	0.3	0.2	0.1	0.1	0.0
High-saving fiscal policy (MSG)	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1
Nominal Effective Exchange Rate[c]						
Neutral fiscal policy (MSG)	0.3	0.3	0.3	0.3	0.4	0.5
Neutral fiscal policy (INTERMOD)	0.6	0.8	1.0	1.1	1.2	1.2
High-saving fiscal policy (MSG)	1.0	1.0	0.9	0.9	0.8	0.8
Real Effective Exchange Rate[c]						
Neutral fiscal policy (MSG)	2.2	2.1	2.0	2.0	1.9	1.8
Neutral fiscal policy (INTERMOD)	2.2	2.9	3.3	3.8	4.0	4.1
High-saving fiscal policy (MSG)	2.8	2.8	2.6	2.5	2.3	2.2
Net Exports[d]						
Neutral fiscal policy (MSG)	-1.8	-1.3	-0.7	-2.0	-2.1	-2.1
Neutral fiscal policy (INTERMOD)	-4.6	-7.0	-8.8	-9.6	-9.9	-9.8
High-saving fiscal policy (MSG)	-6.2	-6.4	-5.9	-5.4	-5.6	-5.7

a. Percentage difference from baseline.

b. Difference from baseline in percentage points.

c. Foreign currency/home currency.

d. Difference from baseline in billions of 1989 dollars.

On balance, EC92 could raise U.S. real income (GDP) slightly. In the INTERMOD simulations, this occurs as a result of increased exports in the early years when aggregate demand in Europe is high and exchange rates favor high European imports. The MSG model simu-

TABLE 5. ESTIMATED EFFECTS OF EUROPEAN PROTECTIONIST POLICIES ON THE UNITED STATES, USING THE MSG MODEL

	1989	1990	1991	1992	1993	1994
Real Gross Domestic Product[a]						
Constant external trade	-0.1	-0.1	-0.1	-0.2	-0.2	-0.3
Decreased external imports	0.2	-0.4	-0.3	-0.3	-0.3	-0.3
Consumer Price Index Level[a]						
Constant external trade	0.0	0.1	0.1	0.2	0.4	0.6
Decreased external imports	0.2	0.2	0.1	0.1	0.3	0.4
Real Short-Term Interest Rate[b]						
Constant external trade	-0.1	-0.2	-0.2	-0.2	0.0	0.3
Decreased external imports	0.7	-0.4	-0.4	-0.5	-0.3	-0.1
Real Long-Term Interest Rate[b]						
Constant external trade	0.2	0.3	0.4	0.5	0.5	0.6
Decreased external imports	-0.0	-0.1	-0.0	0.0	0.0	0.0
Nominal Effective Exchange Rate[c]						
Constant external trade	-0.7	-1.1	-1.8	-3.0	-4.2	-5.2
Decreased external imports	-1.0	-1.9	-2.9	-4.0	-5.2	-6.1
Real Effective Exchange Rate[c]						
Constant external trade	-0.7	-0.7	-0.9	-1.2	-1.6	-1.9
Decreased external imports	-0.9	-1.2	-1.6	-1.9	-2.1	-2.4
Net Exports[d]						
Constant external trade	2.6	2.1	3.3	5.1	7.0	9.6
Decreased external imports	2.6	-5.8	-3.8	-2.3	0.0	2.4

(Continued)

SOURCE: Congressional Budget Office.

NOTE: The MSG model is the McKibbin-Sachs Global Model, developed by Warwick McKibbin of the Reserve Bank of Australia and Jeffrey Sachs of Harvard University. CBO examined the economic effects of two types of protectionist policies. Under one (constant external trade), imports to Europe were held at baseline ratios to GDP. Under the other, imports from non-European countries were reduced by 1 percent of European gross domestic product.

lations, with a different path for the exchange rate, find instead that U.S. real income is raised in the mid-1990s because of the lower costs of production associated with lower prices for imports. In any case, the peak net effect on U.S. incomes is relatively small, amounting to less than half of 1 percent.

TABLE 5. Continued

	1995	1996	1997	1998	1999	2000
Real Gross Domestic Product[a]						
Constant external trade	-0.4	-0.4	-0.4	-0.3	-0.3	-0.2
Decreased external imports	-0.4	-0.4	-0.4	-0.3	-0.2	-0.2
Consumer Price Index Level[a]						
Constant external trade	0.9	0.9	0.9	0.8	0.7	0.6
Decreased external imports	0.6	0.7	0.6	0.5	0.4	0.3
Real Short-Term Interest Rate[b]						
Constant external trade	0.5	0.7	0.8	0.8	0.7	0.6
Decreased external imports	0.1	0.2	0.3	0.2	0.1	0.0
Real Long-Term Interest Rate[b]						
Constant external trade	0.6	0.6	0.5	0.5	0.5	0.4
Decreased external imports	0.0	-0.0	-0.1	-0.2	-0.2	-0.3
Nominal Effective Exchange Rate[c]						
Constant external trade	-5.2	-4.7	-4.1	-3.7	-3.3	-3.1
Decreased external imports	-6.0	-5.5	-4.9	-4.4	-4.1	-3.9
Real Effective Exchange Rate[c]						
Constant external trade	-1.7	-1.4	-1.2	-1.0	-1.0	-1.0
Decreased external imports	-2.1	-1.8	-1.5	-1.4	-1.3	-1.3
Net Exports[d]						
Constant external trade	12.3	12.1	13.1	12.8	11.8	10.7
Decreased external imports	3.1	3.8	3.3	3.4	2.1	1.4

a. Percentage difference from baseline.

b. Difference from baseline in percentage points.

b. Foreign currency/home currency.

c. Difference from baseline in billions of 1989 dollars.

THE RISK OF EUROPEAN PROTECTIONISM

Many observers fear that EC92 could lead Europe to maintain--or raise--its external barriers to trade. Although European protectionism could have an adverse effect on the United States, macroeconomic simulations show that moderate increases in Europe's trade barriers would have little effect on the aggregate U.S. economy. Such moderate increases in protectionism could, however, have substantial effects on particular industries (see Chapter V). If the protectionist stance in Europe was strong, it would hurt the entire U.S. economy.

CBO examined the economic effects of two types of protectionist policies using macroeconomic simulations. In the first simulation, imports to Europe from the United States and the rest of the world were held at baseline ratios to GDP--effectively preventing any of the additional European income from being spent on goods made in the United States. In the second simulation, imports from outside Europe were reduced by 1 percent of European GDP--a substantial amount, probably exceeding the proportionate change in world trade that would occur if all existing tariffs were to be doubled everywhere in the world.[29]

Such policies could affect the United States in two ways: they could lower U.S. net exports, or they could worsen the U.S. "terms of trade"--import prices relative to export prices--by causing currency depreciation. Restrictions on U.S. exports to Europe would, other things being equal, lower U.S. net exports and reduce the demand for U.S. production. Most discussions of the question emphasize this type of result, but there is another interrelated result: lower sales to Europe could reduce the demand for dollars and dollar assets, producing a dollar depreciation that would cause an offsetting increase in sales to other countries. This mechanism would avoid losses in net exports and reduce losses in output. It would still be costly to the United States, since the depreciation would mean higher import prices, thus increasing consumer prices and reducing real incomes in the United States.

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29. The estimated effect on trade of the Tokyo Round of tariff reductions amounted to about 0.6 percent of world GDP. The estimated effect of the tariffs remaining after the Tokyo Round was similar. Thus, returning to pre-Tokyo tariffs would cut trade by less than one-half of 1 percent of world GDP. See Alan Deardorff and Robert Stern, *The Michigan Model of World Production and Trade* (Cambridge, Mass.: MIT Press, 1986), Chap. 4, p. 47.

In principle, both of these mechanisms could be important. In CBO's simulations on the MSG model, however, much of the cost of European trade restrictions for the United States shows up as dollar depreciation (compared with dollar appreciation that would occur as a result of the European reforms without import restrictions), and an increase in consumer prices (see Table 5 on page 34). As a result of these combined mechanisms, real GDP would be reduced modestly by the end of the decade--by about one-fourth of a percentage point according to the simulations.

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CHAPTER III

THE TRANSFORMATION OF EASTERN EUROPE

The dramatic overthrow of communist regimes in Eastern Europe last year was accompanied by radical plans to transform their economies along free-market capitalist lines similar to those of Western Europe and North America.[1] The task facing the reformers is expected to be enormously difficult, and the outcome is far from certain. Under the most favorable circumstances, economic growth on a robust scale cannot be expected for several years. In the interim, large reductions in standards of living, a massive increase in unemployment, and other difficulties are expected to test the resolve of the reformers and the general population, leaving open the possibility that the radical reform plans may be derailed.[2]

The transformation of Eastern Europe should have its most significant impact on the U.S. economy in two ways: by slightly raising U.S. interest rates, as world financial markets tighten in response to increased foreign capital demands by Eastern Europe; and by enabling lower defense expenditures--a peace dividend arising from the end of the Cold War. The effects of lower defense expenditures on the U.S. economy were not examined in this study, mainly because it is difficult to distinguish between the defense cuts attributable to Eastern Eur-

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1. The Eastern European countries that are the focus of this chapter are Bulgaria, Czechoslovakia, Hungary, Poland, Romania, and Yugoslavia. Yugoslavia broke away from the Soviet bloc in 1948, but though it remained nonaligned, it kept its communist system of government and aspects of a centrally planned economic system. Yugoslavia did not undergo drastic political upheaval last year, but, like its counterparts in Eastern Europe, it is currently attempting to replace the centrally planned system with a free-market, capitalist system. The former East Germany is discussed separately in the next chapter.

2. For the political challenges facing the reform movement see, for example, David Lipton and Jeffrey Sachs, "Creating a Market Economy in Eastern Europe: The Case of Poland," and comments by Janos Kornai, both in *Brookings Papers on Economic Activity*, vol. 1 (Washington, D.C.: Brookings Institution, 1990), pp. 87-89 and 138-142.

ope's liberalization and those attributable to the growth of more amicable relations with the Soviet Union.[3]

THE ECONOMIC REFORMS

Probably the most serious indictment against the centrally planned communist system was that it failed to provide its citizens with the goods and services that they wanted--and had been promised. Unlike countries where low levels of output result in part from a severe shortage of capital, the Eastern European countries achieved a high rate of capital formation in terms of rates of growth of plant and equipment.[4] However, economic growth stagnated, for several reasons: poor allocation of resources, a stifling of innovation, and a neglect of investment in housing and infrastructure (see Table 6). Moreover, the quality of output was so inferior to that of Western countries that the Eastern Europeans had great difficulty in earning hard currency through exports.[5]

The complex task of transforming these economies requires both a policy of long-term structural reform and a program for short-term stabilization.

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3. CBO has stressed on many occasions that reducing the budget deficit will have positive long-run effects on the U.S. economy. See for example, Frederick Ribe, Robert Dennis, and Robert Kilpatrick, "Economic Effects of Deficit Reduction in Commercial Econometric Models," in National Economic Commission, *National Economic Commission Staff Papers, Background Papers and Major Testimony* (March 1989), pp. 185-197; and Congressional Budget Office, *The Economic and Budget Outlook: Fiscal Years 1990-1994* (January 1989), Chap. III, and *Policies for Reducing the Current-Account Deficit* (August 1989). The implications for U.S. defense spending in the post-Cold War period are discussed in Congressional Budget Office, "Meeting New National Security Needs: Options for U.S. Military Forces in the 1990s" (February 1990).

4. In Eastern Europe, gross investment averaged over 30 percent of GDP in 1988-1989, about the same as South Korea and other newly industrializing countries, and significantly higher than the 20.6 percent average of the developed industrial countries in the Organization for Economic Cooperation and Development (OECD).

5. Eastern Europe's lack of international competitiveness is highlighted in its poor export performance relative to Latin America and the newly industrializing countries (NICs) of Asia. While in 1974, Eastern Europe, Latin America, and the Asian NICs all had approximately the same value of exports to the Western industrial countries, by 1987 Eastern Europe had increased its exports to the industrial countries by only about $10 billion, while Latin America and the Asian NICs had increased theirs by about $40 billion and $100 billion, respectively. See John Hardt and Richard Kaufman in the introduction to Congress of the United States, Joint Economic Committee, *Pressures for Reform in the East European Economies*, vol.1 (October 1989).

TABLE 6. EASTERN EUROPE: SELECTED DEMOGRAPHIC AND ECONOMIC INDICATORS

	Bulgaria	Czechoslovakia	Hungary	Poland	Romania	Yugoslavia	OECD
Population (In millions, 1989)	9.0	15.6	10.6	37.8	23.2	23.7	831.8
GNP per Capita (In 1989 dollars)	5,690	7,900	6,090	4,560	3,440	5,460	15,624
GNP Growth (Percent per year)							
1981-1985	0.8	1.2	0.7	0.6	1.0	1.3	2.5
1986-1989	1.2	1.5	0.9	0.2	0.7	0.5	3.6
Cars per 1,000 Inhabitants (1987)	122	175	157	106	11[a]	130	385
Telephones per 1,000 Inhabitants (1987)	248	246	152	122	111	n.a.	542

SOURCES: Assembled by the Congressional Budget Office from Central Intelligence Agency, *Handbook of Economic Statistics* (1990); Organization for Economic Cooperation and Development, *OECD Economic Outlook* (June 1990).

NOTES: GNP = Gross national product.

OECD = Organization for Economic Cooperation and Development.

n.a. = not available.

Overall economic comparisons between the centrally planned Eastern European countries and the market economies are made extremely difficult by totally different concepts of what constitutes output, and by the problems involved in converting output data denominated in national currencies into some common unit (such as U.S. dollars) for comparison. Applying the usual methods of converting national currency data into some common unit (for example, using purchasing-power-parity exchange rates) for cross-country comparisons is always difficult. In the case of Eastern European countries, however, the problems are more acute. Official price data, which are used to determine the relative purchasing power of incomes in different countries, convey little information about Eastern European economies because in many cases the goods are simply unavailable or are sold at much higher prices in black markets. Also, appropriate price data may be totally absent for a number of activities such as education, health, and government services. Given these difficulties, one study calculated the relative difference between the lowest and highest possible GDP estimates for Czechoslovakia in 1980, expressed in U.S. dollars, to be more than 260 percent. See Gerhard Fink and Peter Havlik, "Alternative Measures of Growth and Development Levels: Comparisons and Assessments," in Congress of the United States, Joint Economic Committee *Pressures for Reform in the East European Economies*, vol. 1 (October 1989).

a. Value in 1988.

Long-Term Structural Reform

Structural reform is already under way in Eastern Europe. The programs differ considerably from country to country in terms of their pace, scope, and sequencing of events.[6] The differences reflect the diversity of the region's economic development, previous national experiences with reform, and the difficulties facing these countries. National programs run the spectrum from Poland's "shock therapy" approach, through Czechoslovakia's "gradualist" approach, to Romania's very limited efforts. Reform programs have advanced farthest in Poland, Hungary, and Yugoslavia, where reform efforts began before perestroika in the Soviet Union and the political upheavals in Eastern Europe last year.

The long-term structural reform has three objectives: first, to put into place the institutional and legal framework necessary for the functioning of a market capitalist system; second, to free prices from government control and transfer ownership of the productive resources from the public sector to the private sector; and third, to open the economy to free trade with the rest of the world.

The Institutional and Legal Framework. With the exception of Romania, and to a lesser extent Bulgaria, the Eastern European countries have made some progress toward putting in place institutions to facilitate the functioning of a capitalist system. These include:

- Legislation placing private and state firms on equal regulatory footing, opening most economic sectors to private activity, and eliminating restrictions on the size of private enterprises;

- Legislation creating a capitalist-style banking system composed of a central bank and independent commercial banks;

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6. For detailed accounts of the reform efforts in each of the countries see, for example, International Monetary Fund, *World Economic Outlook* (April 1990), Chap. V and Supplementary Note No. 1; Central Intelligence Agency, *Eastern Europe: Long Road Ahead to Economic Well-Being* (paper presented to the Joint Economic Committee of the Congress, May 1990), Salomon Brothers, Sovereign Assessment Group, *Discovering Investment Opportunities in Eastern Europe: A Framework* (New York, July 1990); and Economic Commission for Europe, *Economic Survey of Europe in 1989-90* (New York, 1990).

- Bankruptcy laws to facilitate the dissolution of unprofitable enterprises;

- Liberalization of previously restrictive laws governing foreign investment in the areas of permissible investments, ownership, and repatriation of profits and capital; and

- Legislation to establish securities markets.

Transferring Productive Resources from Government to Private Ownership. Although privatization should improve living standards in all countries concerned, it is proceeding very slowly. Poland, Hungary, and Yugoslavia are finding privatization difficult because of the rudimentary state of capital markets, poor accounting practices that make it difficult to assess the value of state-run enterprises, the enormous redistributional consequences involved (which may disturb existing social values that emphasize the equitable distribution of income), and unemployment resulting from the closing of inefficient enterprises. In Czechoslovakia, privatization, though important, has been currently less of a priority as the government has concentrated first on rationalizing the state sector before carrying out a privatization program in the near future. Current measures include breaking up large monopolies, decentralizing decisionmaking, and improving efficiency.[7] Bulgaria and Romania have both taken very little action in preparation for privatization, though this may change in Bulgaria because of the recent rise to power of a new government favoring speedier economic reform.

Freeing Prices and Wages from Government Control. Recognizing that the free-market system requires freely fluctuating prices to allocate resources, many Eastern European governments have taken steps to eliminate the extensive controls that existed under the centrally planned system. Under that system, the state planners set prices using criteria that were not dictated by supply and demand, so that the output of the productive sector was incompatible with the preferences of the consumers. In Hungary, 77 percent of consumer prices have

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7. The Central Intelligence Agency estimates that one or two major firms dominate individual industrial branches of most of the Eastern European economies. See CIA, *Eastern Europe: Long Road Ahead to Economic Well-Being*, p. 23.

been freed of direct or indirect controls; in Poland, 90 percent of prices have been freed, and the remainder have been raised by up to several hundred percent.[8] In other countries, similar reforms are under way on a smaller scale. In all countries, the freeing of prices and wages and the reduction of government subsidies take place while close attention is paid to the possible inflationary impacts.

Opening the Economies to Free Trade with the Rest of the World. International trade can play an important role in the transformation of the Eastern European countries. Compared with a closed economy, freer trade offers the following advantages:

- World market prices can be used as benchmarks for domestic prices, especially during the period when these economies struggle with the realignment of their prices to overcome the distortions of central planning;

- Competition from imports can spur the development of competitive domestic markets;

- Imports of capital goods and raw materials can act as a buffer to alleviate shortages and bottlenecks in supply;

- Foreign trade and investment can serve as a vehicle for transferring modern business practices (in accounting, sales, marketing, inventory management, and so forth) and technology from the industrialized countries;

- Living standards may rise as these countries specialize in the production of goods for which they have a comparative advantage and benefit from economies of scale by producing for a larger market.

While progress in opening these economies to free trade with the rest of the world has proceeded at different rates in different countries, the state has lost its monopoly on foreign trade in all of them. All

8. See International Monetary Fund, *World Economic Outlook*, pp. 80, 83.

firms, private as well as state-owned, are allowed in principle to make import and export transactions.

The Eastern European countries have also taken steps to encourage trade in convertible currencies.[9] Trade agreements have been signed with many of the Western industrialized countries. Also, some of the Eastern European countries have allowed their currencies to decline in value against currencies other than the Soviet ruble, and to rise against the ruble--thus encouraging a diversion of exports away from eastern markets and toward Western markets. Import transactions have been liberalized by loosening licensing and quota restrictions on non-Eastern European imports as well as the acquisition of foreign credits. The former Soviet-bloc countries are also moving away from the current system of administered, inconvertible-currency trade among themselves to a system in which trade will be conducted at world prices in convertible currencies.

Short-Run Stabilization

Under central planning, some of the former Soviet-bloc countries ran large hidden budget deficits, which were financed by the creation of money. The result was an excess of aggregate demand over aggregate supply, which led, in turn, to actual or suppressed inflation, overvalued exchange rates, and balance-of-payments problems.

The excess of aggregate demand over supply arose from two main sources. First, the policy of full employment supported by government subsidies to large money-losing firms produced budget deficits that were financed by creating money. Second, because of the ubiquitous shortages of consumer items and the system of price controls, workers typically could not spend as much of their income on goods and services as they would have liked. With some types of private property illegal, these "forced savings" were often held as money balances. This large pool of forced savings--commonly referred to as a "liquidity over-

9. A convertible currency is one that is universally acceptable as a medium of exchange in international trade, as are the currencies of the major industrial countries. Alternatively, a convertible currency is one that the local banking system will readily exchange for an internationally acceptable currency.

hang"--threatened to fuel an increase in spending that could be inflationary. Price controls prevented the "liquidity overhang" and the budget deficits from producing actual inflation; instead, suppressed inflation existed as indicated by the presence of huge premiums on prices for goods (including foreign currency) on the black market.

The experience of a large number of developing countries that have undertaken structural reform shows that it is important to establish macroeconomic stability during the early stages of the structural reform process. Chronic balance-of-payments problems, large budget deficits, and high rates of inflation discourage both foreign and domestic investment. In addition, high rates of inflation confound the free-market system by reducing its effectiveness in allocating resources efficiently. The large increases in all prices obscure changes in relative prices that are supposed to guide resources to where they are needed most.

With the exception of Romania, all the Eastern European countries have put a high priority on economic stabilization, instituting very tight fiscal and monetary policies, devaluing their currencies, and limiting the growth of wage rates. These countries all passed "anti-inflation" budgets for 1990, aimed at sharply reducing budget deficits by reducing industrial subsidies and cutting defense, administrative, and capital expenditures.[10]

These countries have also sharply devalued their currencies (that is, lowered their values in terms of other currencies) to make the prices of their goods more competitive with those of foreign goods, in the hope of alleviating their balance-of-payments problems. These devaluations are intended to make Eastern Europe's exports cheaper (in terms of foreign currency) in foreign markets, and to make their imports more expensive (in terms of the local currency) in domestic markets. The need to enhance the international competitiveness of Eastern Europe in order to solve the region's balance-of-payments problems will un-

10. Yugoslavia experienced hyperinflation in 1989, with price increases averaging 2,800 percent for the year. Poland also experienced a very high 640 percent rate of inflation last year. Both countries have instituted stabilization programs that initially appear to be very effective. In both Yugoslavia and Poland, the inflation rate fell from a monthly rate of more than 60 percent in December 1989 to single digits in 1990.

doubtedly require additional currency devaluations.[11] Devaluation will be necessary to prevent rising domestic prices--the result of removing government subsidies--from neutralizing or even subverting the gains from earlier devaluations.

THE DIFFICULTIES OF REFORM

The process of economic reform in Eastern Europe will probably require many years and much perseverance. Even with the commitment of the policymakers and the population, overall economic performance in the region is likely to deteriorate further in the short term, and efforts to move to a market economy may even be derailed in some countries.

The economic adjustment process must undertake two tasks that reflect the legacy of the communist system. First, replacing a substantial portion of the capital stock will be necessary; and second, the population will have to get accustomed to functioning in a market economy.

Replacing the Capital Stock

The existing capital stock is outmoded by Western standards. Barry Bosworth of the Brookings Institution has estimated that Eastern Europe would need approximately $70 billion per year in capital inflows over the next 10 years (for replacing and expanding the capital stock) to approach the capital-labor ratios existing in Western Europe.[12] Most analysts expect actual flows to be much more modest,

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11. Of course, restoring international competitiveness will require closing the large differential in quality between Eastern European goods and their foreign competitors, since relative price reductions can go only so far in persuading consumers to choose domestically produced goods of significantly inferior quality over better-quality, foreign-produced goods.

12. See Barry Bosworth, *Managing Current Account Imbalances* (Washington, D.C.: Brookings Institution, September 1990), pp. 24-25. This very rough estimate, which Bosworth uses simply to illustrate the enormity of Eastern Europe's foreign capital requirements, is itself quite conservative. This is because Bosworth assumes that Eastern Europeans save at the same rate per worker as their counterparts in Western Europe. However, since incomes in Western Europe are more than twice those in Eastern Europe, this implies that Eastern Europeans save twice as much of their income as Western Europeans.

perhaps around $10 billion to $20 billion per year, given the uncertainty surrounding the restructuring process in Eastern Europe, the external indebtedness of the region, and the limited potential of official foreign lending.[13]

The centrally planned system has left a legacy of a substantially obsolete capital stock, organized in huge, energy-inefficient, environmentally unsound plants, and geared toward producing heavy industrial goods that are poor in quality.[14] Thus, despite impressive rates of investment in the past, much plant and equipment will have to be replaced to bring efficiency and product quality up to the standards of world markets and to satisfy the demands of domestic consumers.

The economic infrastructure in Eastern Europe, especially in telecommunications and transportation, is also very poor, and the task of upgrading it is expected to be formidable. Raising rail, highway, and telecommunications networks to Western standards has become a high priority of the new governments, because the upgrading will assist economic restructuring and encourage foreign investment. The communist regimes neglected the modernization and expansion of telecommunications for political reasons; international telephone connections were allowed to deteriorate in order to restrict outside contacts. Today, the ownership of private telephones in relation to population is below that of many developing countries with comparable levels of per capita income.

Housing, neglected by the communist regimes in favor of investment in plant and equipment, is now old, deteriorating, and in inadequate supply. In Hungary and Poland, waiting lists for housing so far

13. See, for example, Bosworth, *Managing Current Account Imbalances*, pp. 25-26; Economic Commission for Europe, *Economic Survey of Europe in 1989-90*, pp. 222, 228-229; Organization for Economic Cooperation and Development, *OECD Economic Outlook* (Paris: June 1990), pp. 51-52.

14. Eastern Europe has the highest per capita sulfur dioxide emissions in the world, about four times the level in western Germany, contributing to widespread health problems, water pollution, and deforestation.

TABLE 7. EASTERN EUROPE'S CONVERTIBLE CURRENCY DEBT PROBLEM COMPARED WITH THAT OF LATIN AMERICAN COUNTRIES, 1988-1989

Country	Total Debt/ Exports (Percent)	Debt Service Costs/Exports (Percent)
Eastern European Countries		
Bulgaria	300	75
Czechoslovakia	103	17
Hungary	225	40
Poland	500	45
Romania[a]	3	2
Yugoslavia	110	20
Highly Indebted Latin American Countries		
Brazil	313	50
Argentina	512	62
Mexico	317	48

SOURCE: Congressional Budget Office, from Salomon Brothers and World Bank data.

a. Romania cured its external debt problem through draconian policies. A 1981 plan to halve the external debt by 1985 and eliminate it by 1989 left the Romanian consumer devastated. Supplies of all goods for domestic consumption, including imports, were drastically cut so that resources could be diverted for exports to hard-currency areas. For example, by 1985 consumption of electricity by households had been cut back to just 20 percent of 1979 levels. Even more drastic was the razing of small villages and the relocation of their inhabitants to towns and cities in order to save energy and make production more efficient. See Ronald Linden, "Romania: The Search for Economic Sovereignty," in Congress of the United States, Joint Economic Committee, *Pressures for Reform in the East European Economies*, vol. 2 (1989).

exceed construction rates that the implied waiting periods range from 30 to 50 years in major urban areas.[15]

Despite the large capital requirements, actual capital flows into the region over the next several years are likely to be modest for a number of reasons, including the external debt situation, the uncertainty and difficulty of the reform process, and the limited potential

15. In what was formerly East Germany, over 75 percent of the population live in apartments built before 1945, and about half of those apartments were built before 1914. See International Monetary Fund, *World Economic Outlook*, p. 89.

for lending by foreign governments.[16] The external indebtedness of some of the Eastern European countries rivals or surpasses that of some highly indebted Latin American countries--a fact that will make foreign private investors hesitant about lending additional sums in the region (see Table 7). Direct investment by foreign firms in industrial plants is expected to be initially modest, its pace depending on how fast the reforms are put in place. Concern about political stability in these new democracies, the difficulty in assessing the true value of domestic assets, the slow pace of privatization, problems of currency inconvertibility, and existing macroeconomic instability are all expected to make foreign enterprises cautious about investing significant sums in Eastern Europe during the next few years.

Most analysts agree that, over the next few years, lending by foreign governments and by international organizations like the World Bank will be the most important source of external finance for Eastern Europe.[17] Despite a substantial increase in new loans, however, this source of funds will fall far short of Eastern Europe's potential requirements--especially since the United States is struggling with budget deficits, and Germany is preoccupied with unification.

Reorienting the Population

No matter how fast legislative reforms are passed, price subsidies removed, or state-owned enterprises privatized, it will take time for the people to adapt themselves to a market economy.

Managers must now become profit-maximizers. They will no longer be able to count on government subsidies, guaranteed sales, and explicit directives regarding quantities to be produced and extra funds

16. The Organization for Economic Cooperation and Development states that "the eventual needs of these [Eastern European] countries are ... well ... in excess of anything that could be absorbed efficiently or is likely to be forthcoming over the next several years." See *OECD Economic Outlook* (June 1990), p. 52.

17. The Organization for Economic Cooperation and Development has estimated that official lending from the World Bank, the IMF, and bilateral sources may be about $6 billion in 1990 and 1991--principally to Poland and Hungary. The newly created European Bank for Reconstruction and Development will also substantially increase official financial flows to Eastern Europe when it becomes operational.

to finance cost overruns. They will have to develop new skills in marketing, quality control, and labor relations, along with innovative techniques of management and production.

The productivity of labor in Eastern Europe has suffered from excessive job security and weak incentives, contributing to poor work habits, absenteeism, and a lack of initiative and interest. Workers will have to get used to the idea that some unemployment is inevitable in a dynamic economy, and also that poor performance may lead to the loss of one's job. If economic reforms result in the closure of uncompetitive, money-losing firms, unemployment could rise from near zero to more than 20 percent in some Eastern European countries.[18] The unemployment is likely to be heavily concentrated, both by region and industry, making civil unrest, opposition to the economic reforms, and political instability more likely. Housing shortages will exacerbate the effects of unemployment by lessening the mobility of displaced workers.

Income differentials will become increasingly visible throughout the society as wages become more closely related to productivity, and as the legalization of private enterprise stimulates entrepreneurial effort. Class tensions and jealousies could increase, especially if particular ethnic groups are viewed as the main beneficiaries or losers from these economic reforms--a perception that could subvert the process of economic reform and increase the risk of political instability.

Factors Working in Favor of Reform

Despite the formidable obstacles to structural reform, there are reasons to think that Eastern Europe may eventually become very attractive to foreign investment.

While the Eastern European countries suffer from a shortage of capital and of experienced managers and entrepreneurs, they have a solid base of skilled labor, engineers, scientists, and other technical

18. The CIA has estimated that up to 40 percent of Polish and Yugoslav firms would fail if subsidies were pared back and if new bankruptcy laws were implemented. See *Eastern Europe: Long Road Ahead to Economic Well-Being*, p. 23.

workers. This labor force should be able to adapt to the new production techniques and practices stemming from economic reform and the importation of Western technology.[19]

Wages in Eastern Europe remain well below those of other industrialized countries, and even with lower rates of productivity the labor cost per unit of output should be quite competitive. As the process of reform continues, these relatively low wages, together with the skilled labor force, should offer a compelling reason for investment in the region.

The economic reforms have received strong support from the industrialized countries, which have eased restrictions on technological exports to Eastern Europe, signed trade, investment and economic cooperation treaties, and made many commitments for financial aid.[20] The most important of these financial commitments has been the establishment of the European Bank for Reconstruction and Development (with capital of about $12 billion put up by the industrialized countries) to channel governmental assistance into the emerging private sector and into public infrastructure projects. While the bank is small in comparison with the financial needs of the region, such support, along with the trade and technical assistance agreements, could serve as a catalyst for private investment--which ultimately must be the principal engine of growth and development in Eastern Europe.

QUANTITATIVE ASSESSMENT OF THE EFFECTS OF REFORM IN EASTERN EUROPE ON THE UNITED STATES AND ON THE REST OF THE WORLD

On the basis of simulations with a global economic model, CBO estimates that economic reform in Eastern Europe is likely to reduce slightly the economic growth of the rest of the world for the next de-

19. One indicator of general education levels, the number of children enrolled in secondary schools as a percentage of total school-age children, averaged about 75 percent in Eastern Europe compared with 93 percent in the industrialized countries, and 60 percent to 65 percent in the upper-middle-income developing countries. See World Bank, *World Development Report 1987*, p. 263.

20. See Economic Commission for Europe, *Economic Survey of Europe in 1989-90*, pp. 212-223, for a detailed account of the international support for the economic reforms.

cade, though the effect should be quite small because the economies of Eastern Europe are still small relative to those of the rest of the world. Eastern Europe accounts for only 3 percent of world GNP, and its importance in world trade is correspondingly small (see Table 8). Reductions in growth in the rest of the world (including the United States) will come about because the capital demands of the new market economies will work to raise interest rates around the world. Some countries--mostly in Western Europe--will benefit from increased trade with Eastern Europe, though not by enough to offset entirely the effect of higher interest rates.

The CBO estimates were developed using a version of the MSG model that was modified for the purpose of this analysis to include a skeleton sector for Eastern Europe. The model and its modifications are further discussed in Appendix A. Because there is little reliable information about the pre-reform working of the Eastern European economies, and because the reforms are intended to change that working, little was to be gained by attempting to construct a full model for Eastern Europe.

The effect of the reforms on the world economy was simulated in the model by concentrating on two major areas: capital flows to Eastern Europe, and trade flows between Eastern Europe and the rest

TABLE 8. EASTERN EUROPE'S SHARE OF TOTAL WORLD TRADE, 1987-1988

Eastern Europe's Exports	
Total as a percentage of total world exports	4.4
To United States as a percentage of total U.S. imports	0.5
To industrial countries as a percentage of their imports	1.4
Eastern Europe's Imports:	
From the United States as a percentage of total U.S. exports	0.4
From industrial countries as a percentage of their exports	1.3

SOURCES: Congressional Budget Office, from Central Intelligence Agency, *Handbook of Economic Statistics* (1989); Leyla Woods, "Eastern European Trade with the Industrial West," in Congress of the United States, Joint Economic Committee, *Pressures for Reform in the East European Economies* and International Monetary Fund, *Direction of Trade Statistics*.

of the world. The model simulations thus do not capture the effect of the reforms on Eastern Europe itself--on how its industrial structure and output will change, or how the new economies will compete in world markets. Some of these issues are discussed in Chapter V.

Increased Capital Flows to Eastern Europe

Foreign capital flows to Eastern Europe will be critical to the success of the reform efforts. The task of modernizing and expanding the existing capital stock is far too large to be financed out of domestic savings alone. CBO assumed that net capital flows from the rest of the world to Eastern Europe would amount to about $10 billion in 1990 and $20 billion in 1991 and thereafter. These amounts correspond to the "most likely" estimates in Bosworth's study, and do not reflect the vastly larger amounts of capital that would be necessary to bring Eastern Europe's living standards closer to those of the industrialized West.

TABLE 9. ESTIMATED EFFECTS OF REFORMS IN EASTERN EUROPE ON THE UNITED STATES, USING THE MSG MODEL

	1990	1991	1992	1993	1994
Real Gross Domestic Product[a]	-0.1	0.0	-0.1	-0.2	-0.2
Consumer Price Index Level[a]	0.0	0.2	0.3	0.4	0.4
Real Short-Term Interest Rate[b]	-0.2	0.1	0.2	0.3	0.3
Real Long-Term Interest Rate[b]	0.2	0.3	0.3	0.3	0.3
Nominal Effective Exchange Rate[c]	-0.6	-0.8	-0.8	-0.7	-0.7
Real Effective Exchange Rate[c]	-0.6	-0.7	-0.6	-0.6	-0.6
Net Exports[d]	2.7	5.5	5.6	5.8	6.0

(Continued)

SOURCE: Congressional Budget Office.

NOTE: MSG is the McKibbin-Sachs Global Model, developed by Warwick McKibbin of the Reserve Bank of Australia and Jeffrey Sachs of Harvard University.

The estimates also reflect the severe constraints on investment and capital flows that were described earlier in this chapter, as well as constraints on the rate at which the economies are able to absorb capital inflows.

Capital flows to Eastern Europe will tighten world capital markets, raising real interest rates around the world and thus diverting funds from investment in other countries and reducing their potential growth. But because the capital flows will be limited, CBO expects these effects to be modest. According to the simulation with the MSG model, real interest rates would increase by about 0.3 percentage point in most countries (see Table 9). This amount is enough to reduce investment, modestly reducing the growth of the capital stock and cutting the level of output in the United States and Germany by 0.1 percent after 10 years. Ultimately, income in these countries should rise as a result of the earnings from their Eastern European investments.

TABLE 9. Continued

	1995	1996	1997	1998	1999	2000
Real Gross Domestic Product[a]	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1
Consumer Price Index Level[a]	0.4	0.4	0.4	0.3	0.3	0.3
Real Short-Term Interest Rate[b]	0.3	0.3	0.3	0.3	0.3	0.3
Real Long-Term Interest Rate[b]	0.3	0.3	0.3	0.3	0.3	0.3
Nominal Effective Exchange Rate[c]	-0.7	-0.7	-0.7	-0.6	-0.6	-0.6
Real Effective Exchange Rate[c]	-0.6	-0.6	-0.6	-0.6	-0.6	-0.5
Net Exports[d]	5.5	6.4	6.5	5.4	6.2	5.7

a. Percentage difference from baseline.

b. Difference from baseline in percentage points.

c. Foreign currency/home currency.

d. Difference from baseline in billions of 1989 dollars.

Trade Links

The counterpart of the higher net capital flows to Eastern Europe will be an increase in the level of the region's imports from industrialized Western countries, which possess the capital goods and technology needed to modernize Eastern Europe's economies. Again, because of the small size of the Eastern European economies and the modest rise in imports expected, the impact of this increase on the rest of the world is not likely to be large. The major immediate beneficiaries are likely to be the countries in Western Europe, which because of their proximity already account for much of Eastern Europe's trade with the West. According to CBO's simulation, opportunities for more exports to Eastern Europe could raise overall growth in Germany for a few years, though in later years the effects of higher interest rates on Germany's capital stock will dominate the benefits from higher exports (see Table 10).

TABLE 10. ESTIMATED EFFECTS OF REFORMS IN EASTERN EUROPE ON GERMANY, USING THE MSG MODEL

	1990	1991	1992	1993	1994
Real Gross Domestic Product[a]	-0.1	0.2	0.1	0.0	0.0
Consumer Price Index Level[a]	-0.1	-0.1	0.0	0.1	0.2
Real Short-Term Interest Rate[b]	-0.4	0.2	0.2	0.3	0.3
Real Long-Term Interest Rate[b]	0.2	0.3	0.3	0.3	0.3
Nominal Effective Exchange Rate[c]	0.2	0.3	0.3	0.3	0.2
Real Effective Exchange Rate[c]	0.4	0.6	0.5	0.5	0.5
Net Exports[d]	0.7	0.8	0.6	0.3	0.3

(Continued)

SOURCE: Congressional Budget Office.

NOTE: MSG is the McKibbin-Sachs Global Model, developed by Warwick McKibbin of the Reserve Bank of Australia and Jeffrey Sachs of Harvard University.

How the reforms in Eastern Europe will affect overall U.S. net exports or the exchange rate is unclear. Despite the small importance of U.S. trade links with Eastern Europe, the simulation results show a modest improvement in net exports for the United States--larger than the increases for Germany, with its stronger linkages (see Tables 9 and 10). This result should be regarded with caution, however, since it depends on the details of the assumptions made. In this simulation, it is assumed that a substantial proportion of the increased capital flows to Eastern Europe come from U.S. capital markets, and therefore U.S. net exports must move toward a surplus in order to balance the change in capital flows. In order to bring these changes about, the dollar depreciates somewhat relative to other currencies. This increases the U.S. share of world exports and reduces U.S. imports at the expense of other Western countries. Other assumptions about the source of the increased capital flows to Eastern Europe could significantly affect both the predicted changes in U.S. net exports and the predicted movement of the U.S. exchange rate.

TABLE 10. Continued

	1995	1996	1997	1998	1999	2000
Real Gross Domestic Product[a]	-0.0	-0.1	-0.1	-0.1	-0.1	-0.1
Consumer Price Index Level[a]	0.2	0.2	0.2	0.2	0.2	0.2
Real Short-Term Interest Rate[b]	0.4	0.4	0.4	0.3	0.3	0.3
Real Long-Term Interest Rate[b]	0.3	0.3	0.3	0.3	0.3	0.3
Nominal Effective Exchange Rate[c]	0.2	0.2	0.2	0.2	0.2	0.2
Real Effective Exchange Rate[c]	0.5	0.5	0.5	0.5	0.5	0.4
Net Exports[d]	0.0	-0.1	-0.3	-0.4	-0.6	-0.6

a. Percentage difference from baseline.

b. Difference from baseline in percentage points.

c. Foreign currency/home currency.

d. Difference from baseline in billions of 1989 dollars

The Long-Run Outlook

The generally small and negative effects of Eastern European reform on the rest of the world that are suggested by the quantitative simulations do not adequately reflect the long-run prospects for the region, or how the reform process may affect the world economy. Assuming that Eastern Europe can navigate successfully the transition to an open-market economy, its long-term prospects are bright and the region stands to be a significant factor in the world economy. The growth of a market economy in Eastern Europe will entail the further development of some existing industries and the establishment of new industries that could become significant suppliers, customers, or competitors for firms in the West.

The simulation results reported above did not capture these long-run effects of Eastern European reform, because the process of reform is likely to be slow, and the long-run effects will not show up until after the turn of the century. Nor was the model suited for analysis of the effects on particular industries in the West, some of which are discussed in Chapter V.

CHAPTER IV

GERMAN UNIFICATION

The unification of Germany has economic implications broadly similar to those of the emergence of Eastern Europe. Unification involves the conversion of a formerly socialist economy in eastern Germany to a modern market economy. In the short run, unification is expected to affect the United States and the rest of the world economy largely by absorbing a significant part of the supply of capital that would otherwise be available to other countries, raising interest rates throughout the world. It should also help reduce the deficit in the current account of the U.S. balance of payments.

The case of Germany differs, however, from that of Eastern Europe because of the active role that Germany will play in the process of developing its eastern economy. In most respects, Germany's resources will speed the process of development and magnify its impact on the rest of the world. For example, Germany will:

- Quickly establish the legal and institutional framework for a market economy in the former East Germany--a process that is already largely complete;
- Channel relatively large amounts of its own funds into investments in eastern Germany;
- Cushion short-term economic dislocation through its payments of unemployment compensation and other social welfare benefits to citizens of eastern Germany;
- Reduce the barrier that East Germany's large foreign debt formerly posed to the inflow of new investment from abroad; and

- By combining monetary affairs in eastern Germany with its own, prevent an inflationary monetary policy.

In some respects, however, the role of western Germany may partially hinder the development process in eastern Germany. The replacement of the former East German currency with the deutsche mark (DM) prevents eastern Germany from adjusting the exchange value of its currency relative to that of the rest of the country, and the rest of the world, in ways that would help promote its economic development. Moreover, western Germany's influence on wage settlements negotiated by the interim East German government on behalf of East German labor may inhibit foreign investment.

The long-run economic effects of unification will be profound. After some short-run difficulties, the flow of outside capital to eastern Germany should grow substantially over the coming decade. Moreover, the whole German economy should prosper, becoming even more dominant on the European continent than it was before unification.

The changes in Germany will have significant effects on other economies, including that of the United States. In the short run, Germany will no longer be such a major provider of capital for the rest of the world as it has been in the past. World interest rates have already risen as a result of unification, and further upward pressure could be in the offing. This pressure should weaken the dollar, helping to moderate the U.S. trade deficit. Over the long run, an increased volume of trade with an enhanced German economy should raise living standards for Germany and the rest of the world, including the United States, if the German government continues to promote the process of structural adjustment toward free markets.

The rest of this chapter examines the unification process and its implications in greater detail. The last section presents estimates of the quantitative effects of unification.

WHY GERMANY IS BEING UNIFIED

The division of Germany resulted from disagreements among the victorious Allies at the end of World War II. It was a de facto sundering of national bonds that could endure only as long as the Soviet Union was resolved to maintain it. This resolve crumbled in the fall of 1989. Poor economic performance in East Germany, the slackening of Soviet control over Eastern Europe, and President Gorbachev's lack of support for the East German regime led to attempts at political reform in East Germany and to the large-scale emigration of East Germans--often through circuitous routes--into West Germany. Even though East German living standards compared favorably with those of other Soviet-bloc countries, they lagged far behind those of the West German sibling (see Table 11). In a climate of political reform, the surge of

TABLE 11. SELECTED ECONOMIC AND SOCIAL INDICATORS FOR THE FORMER EAST GERMANY AND ITS NEIGHBORS

Economic and Social Indicators	East Germany	Hungary	Poland	West Germany	OECD
Population (In millions, 1989)	16.5	10.6	37.8	61.8	831.8
Gross National Product per Capita (In 1989 dollars)	9,670	6,090	4,560	15,250	15,624
Gross National Product Growth (Percent per year)					
1981-1985	1.9	0.7	0.6	1.2	2.5
1986-1989	1.4	0.9	0.2	3.0	3.6
Cars per 1,000 Inhabitants (1987)	208	157	106	462	385
Telephones per 1,000 Inhabitants (1987)	240[a]	152	122	620[a]	542

SOURCES: Congressional Budget Office using data from Central Intelligence Agency, *Handbook of Economic Statistics* (1990); Organization for Economic Cooperation and Development, *OECD Economic Outlook* (June 1990--GDP data converted at U.S. purchasing-power equivalents); *The Economist* (October 6, 1990).

a. Data are for 1988.

people westward culminated in the tearing down of the Berlin Wall in late 1989.[1]

One concern of the Bonn government was to extend the benefits of the West German economy into East Germany and to slow down the mass migration westward. The West German constitution had long encouraged such emigration by offering citizenship, cash awards, unemployment compensation, and other social services to immigrants from East Germany. But the mass arrivals in late 1989 and early 1990 were seen as destabilizing the economy with their extra purchasing power and their need for housing and social services. The emigration also threatened to deprive East Germany of much of its skilled labor. Chancellor Helmut Kohl proposed German currency unification in February 1990 as a means of stemming the mass exodus.[2]

HOW GERMANY IS BEING UNIFIED

Unification has established the groundwork for a capitalistic pricing system in eastern Germany, but at the same time it may have eliminated a major mechanism for price adjustment between the two parts of the country.

Structural Reform

The elements of structural reform in eastern Germany are the same as those described in the previous chapter with respect to Eastern Europe:

- Providing the institutional and legal framework for a free-market economy;

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1. For further discussion of factors underlying East German political reform and emigration, see Deutsche Bank Economics Department, *Special: Eastern Europe* (February 7, 1990); Paul E. Gallis and Steven J. Woehrel, *Germany's Future and U.S. Interests*, Congressional Research Service Issue Brief IB90006 (February 23, 1990); and John Hardt and Phillip Kaiser, *Reform in Eastern Europe: Implications for Trade, Aid, and Commercial Relations*, Congressional Research Service Issue Brief IB90017 (February 6, 1990).

2. See Gallis and Woehrel, *Germany's Future and U.S. Interests*.

- o Transfer of ownership of real property to the private sector, and the freeing of prices; and

- o Opening of the economy to free trade with the rest of the world.

As a consequence of currency unification and political unification, eastern Germany now has a framework in place for undertaking financial transactions and for handling such procedures as filing for bankruptcy, making private contracts, and establishing patents. Western German laws and regulations have been extended to eastern Germany. Eastern Germany now has a commercial banking system regulated by the Bundesbank, along with other embryonic elements of a capitalist financial system.

Although great uncertainties will hamper privatization, it is likely to proceed much more rapidly in eastern Germany than in the rest of Eastern Europe. Most prices have already been freed, and eastern Germany is open to trade with the western part of the country and with the world. Liberalization of import regulations is virtually complete.[3]

Macroeconomic Stabilization

The major requirements for macroeconomic stabilization described in the previous chapter are also relevant to the German case--that is, a noninflationary monetary policy, reduction of budget deficits, and adjustment of exchange rates and other domestic prices relative to those in the rest of the world. Unification of Germany has transferred control of the eastern German money supply to the central bank, the Bundesbank, which is determined to maintain a tight policy to prevent

3. For discussion of the structural reform aspects of unification, see German Embassy release, "Monetary, Economic and Social Union with the GDR" (Washington D.C., June 1990); International Monetary Fund, *World Economic Outlook* (October 1990); and Hans-Werner Sinn, "East and West Germany Compared (including: Implications of Monetary Union)," prepared for the Congressional Budget Office by the Center for Economic Policy Research, Stanford University, June 25, 1990). For discussion of the privatization process in particular, see "East Germany's Treuhandanstalt: Under New Management" and "Complications Set in for Germany's Industrial Patient," *The Economist* (July 28, 1990).

the buildup of inflationary pressures throughout Germany and to hold the exchange value of the deutsche mark at a high level on world currency markets. Consequently, although government borrowing to finance unification will be extremely large, there is not much danger that government deficits will be financed by printing money.[4]

With regard to a second important part of the process of economic stabilization, the adjustment of domestic prices relative to those elsewhere in the world, two factors may be exerting a negative effect--the institution of the German currency in the East, and wage settlements for eastern German labor.

The institution of the deutsche mark in eastern Germany on July 1, 1990, at a set of fixed conversion rates foreclosed what would otherwise have been an important tool for the economic development of the region--repeated adjustment of the exchange value of its currency relative to that in the rest of Germany and in its other trading partners. Most countries in eastern Germany's position would reduce the exchange value of their currencies, perhaps frequently, to promote their exports and inhibit imports. (The more the exchange value falls, the cheaper most exports are to buyers in other countries, and the more expensive imports are to buyers at home.) However, conversion of the ostmark into deutsche marks early in July has permanently set its value at a level that now may be too high.

As part of the currency unification, all assets and liabilities denominated in ostmarks were denominated in deutsche marks. Eastern German wages, pensions, and other recurrent payments, and the first 4,000 marks of most citizens' saving accounts, were converted into deutsche marks at a 1:1 exchange rate. All other eastern German assets (as well as liabilities) were converted at a less favorable 2:1 rate

4. See German Embassy release, "Monetary, Economic and Social Union with the GDR"; and International Monetary Fund, *World Economic Outlook*. Also see Peter Bofinger, "The German Monetary Unification (GMU): Converting Marks to D-Marks," *Review*, Federal Reserve Bank of St. Louis (July/August 1990); interview with the President of the Deutsche Bundesbank, Karl Otto Pöhl, *Der Spiegel* (February 26, 1990); and Gail Makinen, *The Monetary Unification of Germany: Some Implications*, Congressional Research Service Report for Congress 90-137E (March 12, 1990).

of exchange, including personal savings above the 4,000-mark level for most citizens.[5]

The most crucial feature of currency unification was the choice of currency conversion ratios. The 1:1 ratio was attractive to eastern Germans because it maintained the purchasing power of their current incomes and part of their savings accounts.[6] This ratio meant that a person who could just afford a predetermined sample of goods and services out of income or out of the first 4,000 ostmarks of savings before the currency conversion would still be in a position to (just) afford that same sample of goods after the ostmarks had been converted to deutsche marks.[7] After the German currency was unified, ostmarks were retired from circulation, and ostmark bank accounts ceased to exist.

Although the option of exchange-rate adjustment between eastern and western Germany is gone because there is only one German currency, adjustments in relative prices could still occur if eastern German wages, on the whole, were flexible enough to fall during the period of economic adjustment, bringing other eastern German prices down with them and increasing the region's ability to compete with other countries. But in conjunction with currency conversion, the interim East German government negotiated wage settlements on behalf of East German labor that, at least temporarily, impede wage flexibility. The former East German unions were dissolved, and new unions were instituted as part of formerly West German unions, which have little desire to see their wage standards eroded.[8]

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5. See German Embassy release, "Monetary, Economic and Social Union with the GDR," for details.

6. The 1:1 conversion ratio satisfied the definition of a typical "purchasing-power-parity" (PPP) exchange rate. The PPP rate is the rate of exchange between two currencies that allows one unit of the first currency to buy the same basket of goods and services at home as it would in the second country.

7. It left the typical eastern German consumer indifferent about buying the sample of goods and services at home or buying it in the western part of Germany, with either current income or the first 4,000 marks of his or her stock of savings.

8. For discussion of recent wage settlements, see "Complications Set in for Germany's Industrial Patient," *The Economist* (July 28, 1990); "The Germanies: Bickering all the Way to Unity," *The Economist* (August 4, 1990); and Norbert Walter, "Beyond German Reunification," *The International Economy* (October/November 1990).

Relaxation of the East German Debt Constraint

Before unification, East Germany owed a great deal of money to foreign lenders--enough so that it would have had difficulty borrowing much more. Upon unification, however, its estimated external debt of $12 billion has become almost invisible against the roughly $300 billion in net assets of West Germany.[9]

West Germany's Financial Contribution to the East

The German government is contributing large amounts toward the redevelopment of the East, increasing its budget deficit and the possibility of offsetting increases in taxes or of cuts in other expenditures. Part of the spending for unification is for investments in infrastructure and other projects that will expand eastern Germany's productive capacity. In addition, however, the government is borrowing to cover large expenditures for unemployment compensation and other social welfare programs that serve to cushion the hardships of the transition to market principles.[10] Expenditures for both investment and social welfare programs are likely to continue for some time. As the discussion elsewhere in the chapter points out, German government borrowing to finance these expenditures has raised interest rates worldwide, one of the principal ways in which German unification is affecting the world economy.

In the future, however, Germany may finance a substantial portion of the costs of unification through higher taxes and lower government spending in other areas. Some groups are already urging cuts in government spending. Substantial tax increases are also being considered, including an increase in the value-added tax and in taxes on

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9. Estimate of East German debt from CIA, "Eastern Europe: Long Road Ahead to Economic Well-Being," (paper presented to the Joint Economic Committee of the U.S. Congress, May 1990). Estimate of West German net assets comes from the International Monetary Fund's MULTIMOD model.

10. See Deutsche Bank Economics Department, "Unification Issues: The Costs of German Unification and Ways to Finance Them" (November 1990); and "Germany: Count Your Blessings," *The Economist* (August 25, 1990).

TABLE 12. THREE PROJECTIONS OF NET BORROWING BY THE GERMAN GOVERNMENT (As a percentage of GNP, and including borrowing by the German Unity Fund)

	1989	1990	1991	1992	1993	1994	1995
International Monetary Fund	0.2	-2.2	-3.5	n.a.	n.a.	n.a.	n.a.
Data Resources, Inc.	0.2	-1.9	-3.8	-4.0	-4.3	n.a.	n.a.
The WEFA Group	n.a.	n.a.	-4.4	-3.0	-2.4	-1.9	-1.3

SOURCES: Congressional Budget Office using data from International Monetary Fund, *World Economic Outlook* (October 1990); Data Resources, Inc., *European Country Reports: Germany* (September 1990); WEFA, *World Economic Outlook* (July 1990).

NOTE: n.a. = not available.

tobacco and alcohol. Raising the value-added tax would also help to harmonize taxes with those of other countries in the European Community.[11]

Table 12 shows three projections of Germany's general government deficit as a percentage of GNP. The deficit shown in the table includes the borrowing of the German Unity Fund, a special facility to finance government investment in the East, which is expected to borrow DM 115 billion over the next five years.

HOW UNIFICATION AFFECTS THE TWO PARTS OF GERMANY

The former East Germany is now having a hard time economically. Unemployment is high, and investment and privatization are proceeding slowly, while the rest of Germany is flourishing. Nonetheless, the outlook for the medium term seems hopeful, in part because inflows of investment over the next several years are likely to pick up. In Germany as a whole, the large amounts of government borrowing

11. See International Monetary Fund, *World Economic Outlook* (October 1990).

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for unification have raised interest rates and are reducing the trade surplus.

The Short-Run Outlook for Eastern Germany

In eastern Germany's declining economy, by the fall of 1990, unemployment had risen from virtually zero to about two million people (including those on "short time"), or over 25 percent of the labor force.[12] Up to 30 percent of existing firms were not expected to survive the market reforms, and perhaps half of those remaining would require extensive restructuring.[13] The unemployment stemmed both from business failures and from layoffs. Most preexisting businesses could not find buyers for their output now that generally superior Western goods and services had become available. Another factor was the low level of new investment in eastern Germany.

The rates at which East Germany's currency had been converted into deutsche marks appeared to be exacerbating the region's problems in three areas--emigration, international competitiveness, and investment.

Emigration. The movement of people from eastern to western Germany has slowed considerably since late 1989 and early 1990. But the conversion rates between ostmarks and deutsche marks used at the time of currency unification seem likely to encourage further substantial emigration because, at the 1:1 conversion ratio for wages, both nominal and real wages in the west are substantially higher than those in the east.[14] Although pensions and other social benefits were made relatively favorable for eastern Germans in order to persuade them to stay home, these benefits may lose some of their attraction if unemployment remains high for long.

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12. See "Germany: Just a Question of Time," *The Economist* (August 11, 1990); and "Europe: Kohl's Country," *The Economist* (October 20, 1990).

13. See "East Germany's Treuhandanstalt: Under New Management," *The Economist* (July 28, 1990).

14. See Hans-Werner Sinn, "East and West Germany Compared."

International Competitiveness. The conversion rates between ostmarks and deutsche marks guaranteed that most current production in eastern Germany would not be competitive on international markets. The 1:1 conversion ratio implied that an eastern German who could just afford a particular group or "basket" of goods with a given number of ostmarks before currency conversion would just be able to afford the same basket of goods with the deutsche marks received through currency conversion. Unfortunately, the prices of traded goods were not equalized by the exchange, since the goods exported by eastern Germany have turned out to be relatively expensive in terms of deutsche marks, while the imports are relatively cheap. This happened because the typical basket of goods affected by currency conversion consisted of many goods that are not traded internationally, and misstated the effect of the conversion on the prices of traded goods.[15]

Even devaluing ostmarks substantially at the time of currency unification might not have stimulated eastern exports by much, because international competitiveness depends on the quality of goods as well as their price, and the quality of production in the east is far below that in the west.

Incentives for Investment. The currency conversion and recent wage settlements affected incentives for investment in eastern Germany by outside firms. Those firms would find investment in eastern Germany attractive if the labor cost per unit of product was low in terms of deutsche marks. Assuming that eastern German wage rates stayed the same, a currency-conversion ratio that made relatively few deutsche marks correspond to a given number of ostmarks would keep unit labor costs low in the East, and make investment there attractive. But the 1:1 conversion ratio for wages, together with recent wage settlements, has brought unit labor costs to about the same level in eastern Germany as in the West, and therefore reduces the incentive to new

15. At either the 1:1 conversion ratio, or at a 2:1 conversion ratio (with each ostmark costing half a DM), international traders were not willing to buy internationally tradable goods produced in eastern Germany. Black-market exchange rates before the date of currency unification suggest that international traders were willing to pay only a much lower price for ostmarks in terms of DM (say, a conversion ratio of 4:1, with each ostmark costing only one-fourth of a DM). Of course, once currency unification was effected at the actual conversion rates used in July, the resulting DM prices of current eastern German production became too high to stimulate exports to western Germany or anywhere else.

investment.[16] Analysts are nevertheless optimistic as to eventual investment by outsiders in eastern Germany, since the introduction of new techniques of production and new business methods could lower unit labor costs below the levels of the West, as long as eastern German wage rates do not rise too far.

Another way of encouraging investment in eastern Germany would be through a reduction in wage scales either because eastern German workers agree to receive less or because the federal government subsidizes their labor. The likelihood of wage reductions or wage subsidies, however, remains uncertain; and uncertainty over government subsidies could lead some firms to postpone investment in anticipation of future subsidies.

The Short-Run Outlook for Western Germany

Unification seems likely to help the economy of western Germany even over the short run, since sales to eastern Germany are projected to be quite strong. However, strong government spending on the East, and moderate flows of private investment there, have served to raise interest rates, throw the federal budget into deficit, and reduce the trade surplus.[17]

Western German exports to eastern Germany should be strong in the short run, since the conversion rates that made eastern German goods too expensive in international trade made western German goods attractive in the East. The Organization for Economic Cooperation and Development predicts that deliveries from western Germany and from other industrial countries to eastern Germany should reach an annual rate of DM 40 billion to DM 50 billion ($25 billion to $30 billion) by the second half of 1991.

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16. See German Embassy release, "Monetary, Economic and Social Union with the GDR," for estimates of eastern German wages and productivity relative to those in western Germany. (Unit labor cost is the ratio of the wage rate to labor productivity, which is a measure of output per unit of labor.) The German Embassy release argues, however, that these ratios are adequate to encourage competition.

17. For forecasts of the German short-term outlook, see *Consensus Forecasts: A Digest of International Economic Forecasts* (London: Consensus Economics, Inc., November 5, 1990).

The increase in German government borrowing for unification--both through the federal budget deficit and the German Unity Fund--has already had significant effects on the levels of interest rates and exchange rates and on Germany's trade surplus. One effect already mentioned has been to raise interest rates worldwide by drawing down the supplies of funds available on financial markets. High interest rates have increased the value of the deutsche mark on world currency markets. Borrowing by the German government and the increased exchange rate should also reduce Germany's trade and current-account surpluses in its balance of payments. The current-account surpluses that West Germany ran before unification reflected an excess of private saving and taxes over the amounts of domestic investment and government spending. Now that Germany has sharply increased government spending, this financial surplus will erode.

German monetary policy has been another factor increasing interest rates. Monetary policy has been kept restrictive to stabilize the deutsche mark on world currency markets and to help prevent the increase in demand for western German goods from leading to an increase in inflation. If fiscal policy were to be tightened by cutting other spending or by increasing revenues, it would reduce pressures on monetary policy.[18]

The outlook for interest and exchange rates remains quite uncertain, partly because of the unsettled state of borrowing by the German government. Many observers think that German interest rates may already have peaked. If so, the deutsche mark could depreciate from recent levels. As the discussion later in this chapter will show, other pressures for depreciation could result from the decline in Germany's trade surplus, and from the fact that there may be an oversupply of German goods on world markets after unification.

It is also unclear where private investors in Germany are going to direct their funds in the future--whether to investments in western Germany, investments in eastern Germany, or perhaps to new projects elsewhere in Europe that are being opened by the liberalization of the

18. For an alternative discussion of the macroeconomic implications of unification, see Central Planning Bureau, *Consequences of German Economic Unification* (Working Paper No. 34A, The Hague, Netherlands, February 1990).

European Community (see Chapter II). The EC liberalization will permit free investment flows into the newer member countries of the Community, like Portugal, Greece, and Spain. Table 13 shows rates of hourly compensation of labor in a number of European Community countries and in eastern Germany, relative to the western German level. Clearly, private German savings could profitably flow to a number of destinations in the future.

Long-Run Implications for Eastern Germany

For all of their short-term problems, unification should eventually make eastern Germans much better off, both because of the likely increase in their productivity that modernization, investment, and com-

TABLE 13. HOURLY LABOR COMPENSATION COSTS IN MANUFACTURING IN SELECTED EUROPEAN COUNTRIES
(As percentages of West German level)

	1980	1985	1989
France	73	78	72
Italy	65	76	75
Ireland	48	61	54
Spain	49	50	52
Greece	30	38	31
Portugal	17	16	15
East Germany	n.a.	n.a.	31[a]

SOURCE: Congressional Budget Office using data from Department of Labor, Bureau of Labor Statistics; Hans-Werner Sinn, *Macroeconomic Aspects of German Unification* (Munich: University of Munich, November 1990).

NOTE: n.a. = not available.

a. The East German percentage of the West German level in 1990, after currency unification, is estimated to be about 38 percent to 42 percent.

petitive markets will bring about, and because of the gains from increased trade and specialization.

Most observers expect that capital will flow in (and extra labor continue migrating out) until the productivity of both is close to that in western Germany. As new technologies are instituted, and efficiency increases as a result of the competitive pressures of the free-market economy, the productivity of workers in the East should rise, and with it their incomes.

Exactly how far and how fast the development process will go, however, depends on a number of factors:

- How far and how fast eastern Germans liquidate their existing stock of cash savings (if at all);
- How much eastern Germans save in the future;
- How much the western German private sector invests in eastern Germany;
- How much the German government invests in eastern Germany, and the total borrowing requirements of the German government in world capital markets;
- How far and how fast the rest of the world accommodates a decline in the external current-account surplus of Germany (because this determines the net transfer of funds between the rest of the world and Germany); and
- The growth rate of the labor force in eastern Germany, because attaining any particular capital-to-labor ratio implies a capital stock that depends upon the size of the labor force.

Arguably, the most important factor will be private and official German saving. To give an idea of the orders of magnitude involved, Table 14 shows overall estimates of the amount of capital required over time in eastern Germany and in other Eastern European countries for

a range of possible dates on which the adjustment process is completed. The estimates are based on the assumption that capital-to-labor ratios ultimately reach 80 percent of western German levels. (It should be

TABLE 14. ESTIMATED CAPITAL INVESTMENTS NEEDED BY EASTERN EUROPEAN ECONOMIES TO REACH ROUGH COMPARABILITY WITH WESTERN GERMANY IN 2000, 2020, OR 2040 (In billions of dollars, measured at 1989 prices and 1989 purchasing-power-parity exchange rates)

	2000	2020	2040
Eastern Germany			
Net capital required	592	775	997
Gross capital required	1,071	2,384	4,006
Average annual flow[a]	107	48	40
Bulgaria			
Net capital required	373	503	672
Gross capital required	551	1,135	1,926
Average annual flow[a]	55	16	12
Czechoslovakia			
Net capital required	583	806	1,091
Gross capital required	1,015	2,307	3,996
Average annual flow[a]	102	44	36

(Continued)

SOURCES: Congressional Budget Office using data from World Bank, International Finance Corporation; L.W. International Financial Research, Inc., *Research Project on National Income in East Central Europe* (New York, 1989); Central Intelligence Agency, *Handbook of Economic Statistics* (1990); International Monetary Fund, Multimod Model; Jan Vanous, ed., "Western Investors' Guide to Eastern Europe and the Soviet Union: Summary of Relevant Information," *PlanEcon Report*, vol. 5, no. 42-43 (November 3, 1989); Organization for Economic Cooperation and Development, *OECD Economic Outlook* (June 1990).

NOTES: The above estimates are in no way a forecast of expected cumulative flows of capital into the Eastern European countries. Rather, they are hypothetical limits to the amount of capital that could be absorbed by the Eastern European countries, by entirely arbitrary end dates, but only for the purpose of raising physical capital per worker. The estimates exclude official transfer payments used for consumption purposes.

The net capital requirement is the change in the net stock of capital required to bring a rough estimate of 1990 capital stocks up to 80 percent of the western German standard, by the arbitrarily chosen end date. The western German standard is determined by projecting the level of real capital per worker in western Germany in 1990 out to the arbitrary end date, and then applying the standard to the projected size of the labor force in the country in question. The gross capital requirement includes the net requirement plus cumulative flows of capital needed to cover depreciation of the physical capital stock. Eventually, a significant part of capital requirements should come from domestic savings.

noted that the "need" for new capital in eastern Germany is not great compared with the "needs" of other Eastern European countries.)

TABLE 14. Continued

	2000	2020	2040
Hungary			
Net capital required	354	460	589
Gross capital required	593	1,270	2,120
Average annual flow[a]	59	23	19
Poland			
Net capital required	1,333	2,070	3,104
Gross capital required	2,254	5,476	10,162
Average annual flow[a]	225	96	79
Romania			
Net capital required	937	1,326	1,851
Gross capital required	1,400	3,013	5,289
Average annual flow[a]	140	42	32
Yugoslavia			
Net capital required	825	1,239	1,818
Gross capital required	1,280	2,935	5,360
Average annual flow[a]	128	44	35

NOTES: Continued

The rough estimate of 1990 capital stocks for Eastern Europe reflects a one-time 30 percent to 40 percent reduction, by country, in the end-1989 stocks to allow for their apparent obsolescence.

A purchasing-power-parity exchange rate is a hypothetical construct that indicates the rate of exchange between two currencies that would equalize the real purchasing power between the two currencies (over a GNP basket of goods and services). The 1989 estimates, measured in terms of foreign currency units per dollar, are:

East Germany	2.143	Romania	10.560
Bulgaria	.722	Yugoslavia	1.958
Czechoslovakia	6.035	West Germany	2.239
Hungary	22.878		
Poland	434.22		

a. Average annual flow over first 10 years.

Beyond the gains from modernization, eastern Germany should ultimately benefit from greater specialization and trade with other countries--not only with western Germany but with the other members of the European Community. The region's economy will be subjected to far fewer restrictions on trade than in the past, and will benefit from further structural improvements under the Community's EC92 program, as discussed in Chapter II.

One implication is that production in eastern Germany will eventually operate on a much greater scale and should benefit accordingly. Presumably eastern Germany will be able to specialize in those economic sectors in which it is most richly endowed. While it is too soon to tell what specializations eastern Germany will adopt, analysts point to its highly educated labor force. The region, which was once known as Germany's "Kornkammer"--that is, its granary--may also develop a formidable agricultural sector.

The Long-Run Outlook for Western Germany

Unification is likely to benefit western Germany in the long run, if the government promotes the process of structural adjustment in eastern Germany. A higher level of trade between the two parts of the country, and the specialization and economies of scale this will allow, should raise western German output and consumption per capita. Western German workers who produce goods sold in eastern Germany--and elsewhere--are likely to have higher real incomes, as will western German savers who invest in eastern Germany and elsewhere.

HOW UNIFICATION AFFECTS THE UNITED STATES AND OTHER COUNTRIES

Unification has two principal implications for economic performance in other countries:

- An increase in real interest rates; and

- Reduced deficits in their trade and current accounts in the short run.

These two developments imply that unification will have offsetting effects on economic growth in countries outside Germany.

Unification has particular implications for the rest of Western Europe, notably the European Community. It may affect the rate at which the monetary unification of the Community can be carried out, and offers several lessons on how it should be done (see Appendix B).

Unification's Effects on World Interest Rates

Before unification, West Germany generated a surplus of saving over its own needs, and loaned these funds to the rest of the world. Now that more of this surplus will be invested at home, the availability of funds in financial markets will be limited, and world interest rates have already risen as a result. Analysts attribute a significant part of the sharp increase in long-term interest rates of early 1990 in the United States to the announcement of German unification, and the simulation results that are presented below confirm this belief.

The rise in interest rates should serve to reduce the rate of investment and other interest-sensitive spending in countries outside Germany, slowing the growth of their economies. In addition, heavily indebted developing countries face an increase in the cost of servicing their debt.

Effects on Trade Balances

An increase in trade should partially offset the effect of higher interest rates on economic growth in the United States and other countries, by increasing exports and reducing imports. The increase in the exchange value of the deutsche mark on world currency markets makes the dollar and other currencies more competitive with the mark, and helps goods made in countries outside Germany compete with German goods.

The Long-Run Outlook

The long-run implications of unification for the United States and other countries are favorable if the German government promotes the process of structural adjustment in eastern Germany and extends free markets there. Freer trade will reduce the dispersion of relative prices among trading countries. International specialization will increase according to the principle of comparative advantage. The levels of international trade, output, consumption, and living standards should be higher both for the world at large and for the United States in particular.

QUANTITATIVE ASSESSMENT OF THE EFFECTS OF UNIFICATION ON GERMANY

In effect, the unification of Germany has produced a larger country with a higher capital stock, labor force, and gross national product. In CBO's simulations, unification raises Germany's real long-term interest rates in the 1990s by between 0.8 and 2.5 percentage points over what they would otherwise be. The higher interest rates result both from increased investment in the combined Germany and from the large fiscal costs of unification. CBO's simulations suggest that these factors have already forced interest rates up. Nevertheless, Germany's real exchange rate is likely to depreciate significantly in the long run (see Table 15).

CBO's estimates were developed using the MSG model. Since it did not have an explicit representation of East Germany, the impulse of unification was represented by imagining that West Germany suddenly grew larger, and that others of its economic conditions were suddenly altered by the addition of new workers, machinery, and money, and by other economically relevant changes. In particular, the shock to the economy was assumed to be represented by sudden changes in the West German capital stock, supply of labor, average wage rate, supply of money, and government expenditures. The particular changes in these variables that were assumed to occur, based on independent estimates, are described in Appendix A.

The substantial increase in German government expenditures--which in the CBO simulations are assumed to peak at 5 percent of GDP in 1991--could be financed in more than one way. The key issue involves the extent to which the government will borrow or raise taxes to meet the costs of unification. Because of the uncertainty surrounding this issue, CBO has examined two extreme alternatives--financing the expenditures by borrowing alone (bond financing) or solely by raising taxes (tax financing).

CBO assumed no impulses or "shocks" from other countries, but did make particular assumptions about fiscal and monetary policies in other countries. It assumed that all governments outside Germany respond minimally to changes resulting from German unification, allowing their government expenditures to vary in line with changes in output. Only in the case of Germany's closest trade partners in Europe does this assumption affect the results. Monetary policies were also generally assumed to be neutral. The only complication in regard to monetary policies affected the countries of the European Monetary System outside Germany--that is, Belgium, Denmark, France, Ireland, Italy, Luxembourg, the Netherlands, and the United Kingdom. Under the European Monetary System, national monetary policies are used to hold the exchange rates of member countries in a fixed relation to each other. In CBO's basic simulations, this arrangement of monetary policies was assumed to be maintained after unification.

The Effect of Unification on German Capital Markets and Exchange Rates

As described earlier in this chapter, the reorganization of production in eastern Germany will require a large increase in new investment. In addition, the fiscal costs of unification could--unless they are financed by tax increases or cuts in other spending--add further substantial capital demands. As a result, real long-term interest rates rise substantially in the early 1990s--in the CBO simulations--by 1.2 percentage points at their peak if the fiscal costs of unification are tax-financed and 2.5 percentage points if they are bond-financed. Increases in short-term interest rates are even larger.

CBO's simulations suggest that unification is likely to cause the deutsche mark to depreciate in real terms on world currency markets. The depreciation is especially strong if the budget costs of unification are financed through increased taxes rather than by issuing bonds; under either assumption about how these costs are financed, the depreciation is especially strong in the long run.

TABLE 15. ESTIMATED EFFECTS OF GERMAN UNIFICATION ON GERMANY, USING THE MSG MODEL

	1990	1991	1992	1993	1994
Real Gross Domestic Product[a]					
Tax-financed spending	10.5	13.0	14.7	16.2	17.4
Bond-financed spending	11.1	14.6	16.2	17.3	18.1
Consumer Price Index Level[a]					
Tax-financed spending	-0.2	-1.4	-2.5	-3.5	-4.3
Bond-financed spending	-1.1	-2.7	-3.7	-4.5	-5.0
Real Short-Term Interest Rate[b]					
Tax-financed spending	0.6	1.6	1.5	1.4	1.4
Bond-financed spending	1.3	3.4	3.0	2.8	2.6
Real Long-Term Interest Rate[b]					
Tax-financed spending	1.2	1.2	1.1	1.1	1.0
Bond-financed spending	2.4	2.5	2.3	2.2	2.1
Nominal Effective Exchange Rate[c]					
Tax-financed spending	-3.7	-3.0	-2.9	-2.8	-2.8
Bond-financed spending	0.0	0.6	0.2	-0.2	-0.6
Real Effective Exchange Rate[c]					
Tax-financed spending	-8.9	-11.1	-13.4	-15.3	-16.9
Bond-financed spending	-1.9	-4.0	-7.1	-9.6	-11.7
Net Exports[d]					
Tax-financed spending	4.3	8.1	13.9	18.8	23.1
Bond-financed spending	-27.4	-32.1	-25.5	-18.3	-10.9

(Continued)

SOURCE: Congressional Budget Office.

NOTE: The MSG model is the McKibbin-Sachs Global Model, developed by Warwick J. McKibbin of the Reserve Bank of Australia and Jeffrey Sachs of Harvard University.

The deutsche mark's depreciation in the simulations seems paradoxical, because the DM has appreciated sharply relative to the dollar on actual currency markets since unification was announced. While taking account of these pressures for an appreciation of the deutsche mark, CBO's simulations suggest that two factors will offset the

TABLE 15. Continued

	1995	1996	1997	1998	1999	2000
Real Gross Domestic Product[a]						
Tax-financed spending	18.3	19.1	19.7	20.3	20.8	21.1
Bond-financed spending	19.4	19.4	19.8	20.2	20.5	20.7
Consumer Price Index Level[a]						
Tax-financed spending	-5.0	-5.6	-6.1	-6.4	-6.7	-6.9
Bond-financed spending	-5.4	-5.8	-6.0	-6.1	-6.2	-6.3
Real Short-Term Interest Rate[b]						
Tax-financed spending	1.3	1.2	1.0	1.0	0.9	0.9
Bond-financed spending	2.4	2.3	2.2	2.1	2.0	1.9
Real Long-Term Interest Rate[b]	1.0	0.9	0.9	0.9	0.9	0.9
Bond-financed spending	2.0	1.9	1.8	1.7	1.6	1.4
Nominal Effective Exchange Rate[c]						
Tax-financed spending	-2.9	-3.0	-3.1	-3.2	-3.3	-3.5
Bond-financed spending	-0.9	-1.3	-1.7	-2.0	-2.4	-2.8
Real Effective Exchange Rate[c]						
Tax-financed spending	-18.4	-19.7	-20.9	-21.8	-22.7	-23.5
Bond-financed spending	-13.6	-15.3	-16.8	-18.3	-19.6	-20.9
Net Exports[d]						
Tax-financed spending	27.7	32.3	37.4	41.4	45.7	50.0
Bond-financed spending	-4.2	2.6	9.8	17.3	25.1	32.2

a. Percentage difference from baseline.

b. Difference from baseline in percentage points.

c. Foreign currency/home currency.

d. Difference from baseline in billions of 1989 dollars.

TABLE 16. EFFECTS OF GERMAN UNIFICATION ON THE UNITED STATES, USING THE MSG MODEL

	1990	1991	1992	1993	1994
Real Gross Domestic Product[a]					
Tax-financed spending	0.2	0.1	0.1	0.1	0.1
Bond-financed spending	0.1	0.0	-0.2	-0.2	-0.2
Consumer Price Index Level[a]					
Tax-financed spending	-0.1	-0.1	-0.1	-0.1	-0.1
Bond-financed spending	0.2	0.6	0.8	0.8	0.8
Real Short-Term Interest Rate[b]					
Tax-financed spending	0.2	0.2	0.1	0.2	0.2
Bond-financed spending	0.1	0.6	0.9	1.0	1.1
Real Long-Term Interest Rate[b]					
Tax-financed spending	0.2	0.2	0.2	0.2	0.3
Bond-financed spending	0.9	0.9	0.9	0.9	0.9
Nominal Effective Exchange Rate[c]					
Tax-financed spending	2.1	1.6	1.6	1.7	1.8
Bond-financed spending	-1.6	-1.8	-1.4	-1.0	-0.6
Real Effective Exchange Rate[c]					
Tax-financed spending	1.8	1.1	1.0	1.1	1.3
Bond-financed spending	-1.4	-1.5	-0.9	-0.5	-0.2
Net Exports[d]					
Tax-financed spending	3.7	2.2	1.1	0.0	-0.6
Bond-financed spending	13.3	15.9	15.2	13.9	12.0

(Continued)

SOURCE: Congressional Budget Office.

NOTE: The MSG model is the McKibbin-Sachs Global Model, developed by Warwick J. McKibbin of the Reserve Bank of Australia and Jeffrey Sachs of Harvard University.

pressures and cause the currency to depreciate instead.[19] The first factor leading to depreciation results from the fact that Germany's strong spending for unification initially causes a reduction in the surplus in the current account of its balance of payments. As a result, Germany's lending to the rest of the world, and its receipts from debt-service payments, grow smaller. In the longer term, the simulation

19. For a more detailed discussion of these factors, see Warwick J. McKibbin, "Some Global Macroeconomic Implications of German Unification," Brookings Discussion Papers in International Economics, No. 81 (Washington, D.C.: Brookings Institution, May 1990).

TABLE 16. Continued

	1995	1996	1997	1998	1999	2000
Real Gross Domestic Product[a]						
Tax-financed spending	0.1	0.1	0.1	0.1	0.1	0.1
Bond-financed spending	-0.2	-0.1	-0.1	0.0	0.0	0.1
Consumer Price Index Level[a]						
Tax-financed spending	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2
Bond-financed spending	0.7	0.6	0.5	0.4	0.4	0.3
Real Short-Term Interest Rate[b]						
Tax-financed spending	0.2	0.2	0.2	0.2	0.3	0.3
Bond-financed spending	1.1	1.0	1.0	0.9	0.9	0.8
Real Long-Term Interest Rate[b]						
Tax-financed spending	0.3	0.3	0.3	0.3	0.3	0.3
Bond-financed spending	0.8	0.8	0.7	0.7	0.6	0.6
Nominal Effective Exchange Rate[c]						
Tax-financed spending	1.9	2.1	2.3	2.4	2.6	2.7
Bond-financed spending	-0.2	0.2	0.6	1.0	1.4	1.9
Real Effective Exchange Rate[c]						
Tax-financed spending	1.4	1.6	1.8	1.9	2.1	2.3
Bond-financed spending	0.1	0.3	0.6	0.9	1.2	1.4
Net Exports[d]						
Tax-financed spending	-1.8	-3.2	-3.9	-6.1	-7.6	-10.0
Bond-financed spending	10.0	9.5	6.5	4.0	1.4	-1.4

a. Percentage difference from baseline.

b. Difference from baseline in percentage points.

c. Foreign currency/home currency.

d. Difference from baseline in billions of 1989 dollars.

model embodies the assumption that Germany's balance of trade will have to improve in order to generate earnings of foreign currency to offset the lower debt-service receipts. This improvement in trade requires a depreciation of the deutsche mark and is one of the factors that works to force the DM downward in CBO's simulation.

The second factor that accounts for the DM's depreciation in the simulation stems from the fact that unification--by adding East Germany's labor and capital to those already in West Germany--causes an increase in the supply of German goods on world markets relative to

the amounts of goods produced in other countries. This relative oversupply of German goods results in a reduction in the prices of those goods relative to goods produced elsewhere; the change in relative prices is brought about through a depreciation of the DM.[20] While this factor operates most directly during the later years of the simulation, anticipation of it through the forward-looking aspects of the simulation model helps cause the DM to depreciate even in the early years.

A number of reasons explain why the apparent behavior of the deutsche mark in the real world does not match that in the simulations. First, many of the early influences on the DM may be short-run fluctuations that the simulation model is not designed to capture. Second, experience in the real world is influenced by other events--such as reductions in the budget deficit in the United States and increases in the price of oil--that are not taken into account in this study. Finally, the simulation model may be inaccurate in its prediction of how soon some of the developments will occur, but not about the fact that they will occur sometime soon.

Two other recent analyses of the effects of German unification have come to somewhat different conclusions about the likely path of the deutsche mark over the medium term, concluding that the DM should be stronger over most of the 1990s (in both nominal and real terms) than it would have been in the absence of unification.[21] In other respects, however, these analyses come to conclusions that are very similar to those indicated by the CBO simulations--partly because the modeling frameworks are quite similar. In all of the models, similar. In all of the models, economic agents exhibit forward-looking behavior, and expected future economic events influence current behavior. One possible explanation for the differing conclusions regarding exchange rates over the medium term could be differing char-

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20. This source of pressure for depreciation could be offset if Germans reduce the oversupply by consuming disproportionately more of their own goods than of imports. CBO's simulations do not take account of this possibility.

21. One of these analyses was prepared at the Board of Governors of the Federal Reserve System, and the other at the International Monetary Fund. See Lewis S. Alexander and Joseph E. Gagnon, "The Global Economic Implications of German Unification," International Finance Discussion Papers, Board of Governors of the Federal Reserve System, No. 379 (April 1990); and International Monetary Fund, "International Implications of German Unification," *World Economic Outlook* (October 1990).

acterizations of the very-long-run outcome for the deutsche mark. Both of the other models assume that, in the very long run, the nominal value of the DM is the same as it would have been in the absence of German unification. The model that CBO has used assumes that the inflation-adjusted value of the DM in the very long run is affected by the interaction of national saving rates and propensities to spend income on imports.

The Effect of Unification on Germany's Net Exports

The growth of import demand in Germany could mean, in the short run, a deterioration in its net exports, though in the long run net exports are likely to move to a substantial surplus. Short-run deterioration could occur in particular if Germany finances the fiscal costs of unification by borrowing, which would imply higher interest rates and consequently little initial decline in the DM (or perhaps even an increase).

QUANTITATIVE ASSESSMENT OF THE EFFECTS OF GERMAN UNIFICATION ON THE UNITED STATES

CBO's simulations suggest that while German unification will raise interest rates and the real value of the dollar, it should have only a modest impact on economic growth in the United States during the 1990s (see Table 16 on page 82). In the short run, the complex of German economic changes is expected to reduce U.S. domestic investment and the U.S. trade deficit at the same time--developments that will offset each other in their effects on the rate of U.S. economic growth.

Capital Market Links. The tightening of German capital markets will increase U.S. as well as German interest rates, while the dollar is likely to undergo a real appreciation in the long run. The appreciation of the dollar is the direct counterpart of the real depreciation of the DM that has already been discussed. The simulations suggest that real long-run interest rates in the United States might rise by between 0.2 and 1.0 percentage points, the larger increase occurring if the German

government finances unification by borrowing. Such increases in interest rates would work to reduce investment in the United States. The real effective exchange rate of the dollar rises, in CBO's simulations, by 1½ percent or 2½ percent--substantially less than the effective depreciation of the DM, because the DM depreciates against most currencies while in general the dollar appreciates only against the DM.

Trade Links. In the short run, the strong growth of German demand improves U.S. net exports a little, though eventually this is largely offset by the dollar appreciation. The simulations suggest that net exports could rise by as much as $16 billion (in 1989 dollars) at their peak, if the German government uses borrowing to finance unification. In the long run, however, the U.S. trade improvement becomes trivial and could even turn into a deterioration. This occurs even though Germany continues to import more, because most of the increase in German imports is predicted to come from European neighbors, particularly from the other countries of the European Monetary System (EMS) whose currencies are linked to the DM. If German unification leads to strains in the EMS large enough to provoke a realignment, it is possible that other European countries will benefit somewhat less from increased exports to Germany than these simulations suggest, while the United States would benefit somewhat more. For further discussion, see Appendix B.

CHAPTER V

MICROECONOMIC EFFECTS OF A RESTRUCTURED EUROPE

This chapter examines how the benefits and risks of European restructuring are likely to be distributed among sectors of the U.S. economy. It begins with a discussion of general distributional issues and effects common to a number of sectors, and then proceeds to illustrate those effects with case studies of six important sectors: aerospace, agriculture, automobiles, semiconductors, steel, and telecommunications.

GENERAL CONSIDERATIONS

European restructuring has a greater potential for benefit or harm to individual sectors of the U.S. economy than it does for the overall economy and the aggregate trade balance as modeled in the previous chapters. The most significant effect on overall output, the development of new and better products and technologies by industry in response to a more competitive and unhampered environment, will occur over the very long term and is not easily modeled or measured; and the potential for effects on the U.S. aggregate trade balance is limited.[1] However, the distribution of trade by product--the kinds of products exported and imported--could be significantly affected.

1. The trade balance (or, more technically, the current-account balance) of a country is equal to aggregate saving minus aggregate investment. This fact is a fundamental accounting identity that follows from the definitions of current-account balance, saving, and investment. Thus, the U.S. trade balance can be affected only by changing either saving or investment in the United States. While investment in the United States may be reduced somewhat by high interest rates resulting from investment in Eastern Europe, this effect should not be large. There should be no significant effect on saving.

The European Community

Several of the industry-specific effects of the European Community's EC92 program are common to a number of different industries and merit a general discussion here.[2]

Effects on U.S. Industries with Increasing Returns to Scale. EC92 should help production located in the European Community--that is, EC firms and EC affiliates of U.S. and other foreign firms--in industries that have increasing returns to scale, by providing a larger market for that production. Those industries include high-technology industries that perform a lot of research and development.

Industrial Policy. While EC92 aims to increase European competitiveness by clearing away barriers to trade and thus moving in the direction of a freer market, other EC initiatives--such as Airbus, Arianespace, CERN, Esprit, Eureka, the European Space Agency, JESSI, JET, and RACE among others--move in the opposite direction, aiming to improve the competitiveness of various industries through joint government coordination and subsidies.[3] The effect of such programs on EC trade, to the extent that they are successful, is to promote the competitiveness of the particular industries they were designed to help at the expense of the competitiveness of other EC

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2. The issues described in this section are treated in a number of secondary sources, including Gary Clyde Hufbauer, "An Overview," in Gary Clyde Hufbauer, ed., *Europe 1992: An American Perspective* (Washington, D.C.: Brookings Institution, 1990); Advisory Committee for Trade Policy and Negotiations, *Europe 1992* (Washington, D.C., November 1989); General Accounting Office, *European Single Market: Issues of Concern to U.S. Exporters* (February 13, 1990); U.S. International Trade Commission, *The Effects of Greater Economic Integration Within the European Community on the United States*, USITC Publication 2204 (July 1989), and two subsequent follow-up publications, USITC Publications 2268 and 2318; and Mary Saunders, "EC92: Opportunities and Challenges for U.S. Business," in Department of Commerce, *1990 U.S. Industrial Outlook* (January 1990). The sources generally agree on the primary issues.

3. Airbus is a consortium of aerospace companies that produces passenger aircraft. Arianespace is a consortium that launches satellites into space. CERN is a research project that has built a large particle accelerator. Esprit is a microelectronics research and development program. Eureka is a group of research projects that includes the development of high-definition television standards and external automobile guidance systems. The European Space Agency builds satellites and is developing a space shuttle. JESSI is a program to develop a new generation of semiconductors. JET is a project to develop a nuclear fusion reactor. RACE encompasses a number of projects relating to telecommunications technologies.

industries.[4] In so doing, the programs increase the competition for U.S. firms in the industries concerned, and decrease the competition in other industries.

Reciprocity vs. National Treatment. The United States generally advocates "national treatment," which means that a country should treat foreign firms the same way it treats its own. The EC has indicated that in some industries it may instead be guided by the principle of reciprocity--that is, treating foreign firms the same way that the firms' respective home countries treat EC firms. At one point this issue was of particular concern in the banking industry, since the United States does not allow either domestic or foreign firms to engage in unrestricted interstate banking or in both commercial and investment banking. This case has been largely resolved and the more general issue of reciprocity has abated somewhat, but concerns remain.

National Quotas: Extension or Elimination? A number of EC member countries have imposed their own import quotas (sometimes in the form of voluntary restraint agreements) to protect certain industries from competition from outside the EC (for example, textiles from numerous countries, automobiles from Japan). They will not be able to maintain these national quotas without the national border controls that are to be eliminated by EC92. The question thus arises for each of these quotas as to whether it will be eliminated or extended throughout the EC. Extensions could harm the United States and would harm the EC even more, but they may occur anyway because of political pressures from special interests in the EC.

Harmonization of Technical Standards. The subject of technical standards and their harmonization was covered in detail in Chapter II. These standards create two areas of concern for U.S. firms. The first is

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4. That the competitiveness of other industries is harmed by these programs follows directly from the fact that a country's trade patterns are determined by comparative advantage (that is, how the country's industries compare in efficiency *relative to one another*) and not by absolute advantage (that is, how the industries compare relative to some outside standard such as the efficiency of industries in the rest of the world). A country's most efficient industries will be competitive in world markets and its least efficient industries will not be, regardless of how these industries compare with their counterparts in other countries. The EC programs in question increase the efficiencies of particular industries relative to those of other EC industries and thereby make the former more competitive internationally. This means that the efficiencies of the latter industries are reduced relative to the former, making them less competitive internationally.

that U.S. firms might not be allowed a voice in the setting of standards and that, as a result, standards might be set in a way that would put U.S. products at a disadvantage. However, the American National Standards Institute has been granted a voice in the process, and companies--especially the larger U.S. companies with established affiliates in Europe--can make themselves heard. The second area of concern is that although each EC country is required to recognize the standards, testing, and certification of other EC countries, the EC countries are not required to recognize those of the United States.

Aside from the possibility of discriminatory regulations, harmonization should lower the costs of doing business in the EC and thereby help U.S. firms as well as EC firms. In fact, in some industries harmonization may give U.S. firms an initial competitive advantage because they have greater experience with multicountry operations in Europe. This is particularly true in the areas of automobiles, telecommunications, and pharmaceuticals.[5]

Rules of Origin and Local Content. Rules of origin and local content requirements arise in the areas of antidumping law, countervailing-duty law, laws that give preferences to the products of certain countries (such as developing countries), government procurement, and quotas, among others.[6] They can be written in such a way as to substantially reduce imports of particular products. This issue arises in the EC Broadcast Directive, which allows member countries to require 50 percent EC content in television programming. It also arises in regard to automobiles, semiconductors, and telecommunications.

Trade Creation and Trade Diversion. As was discussed in Chapter II, the effects of trade creation and trade diversion will not be very significant to the U.S. economy in the aggregate, but could be significant to particular sectors of the U.S. economy. The form of diversion discussed in Chapter II would affect U.S. exports to the EC. Another form of diversion could result in increased U.S. imports from countries other than the EC. That would occur if products previously exported by

5. Hufbauer, "An Overview," pp. 38-39.

6. Countervailing duties are duties assessed by an importing country to offset subsidies given by the government of the exporting country to the manufacturer of the product in question.

other countries to the EC were diverted to the United States because they could no longer be sold in the EC as a result of new EC import barriers (such as extended quotas or discriminatory technical standards, rules of origin, or local content requirements). As will be seen later, the automobile industry could be affected by this form of diversion.

Discriminatory Government Procurement Regulations. As discussed in Chapter II, the EC is liberalizing government procurement in the areas of telecommunications, energy, water supply, and transportation. The EC will require that all EC firms be allowed to compete for public contracts in these areas. However, member countries will be allowed to reject foreign bids not meeting a 50 percent EC content requirement or to impose a 3 percent "buy European" preference on such bids if they are not rejected outright. For comparison, the United States has two sets of "buy American" provisions: those imposed by the federal government, and those imposed by state and local authorities. The federal government considers all bids, but imposes a 6 percent preference margin against bids with over 50 percent foreign content. State and local governments, if they wish, can exclude foreign bids.[7]

Antitrust Policy. The EC is implementing a common antitrust policy. The Regulation on the Control of Concentrations, adopted in December 1989, has been praised for setting one EC-wide policy (and thereby reducing costs for all affected firms, U.S.-owned and EC-owned alike); for providing for administration by the EC Commission rather than the national authorities, which are likely to be more nationalistic; and for employing competitive criteria for evaluating mergers. It has been criticized for allowing exceptions to EC Commission control and leaving open the possibility of promoting particular industries.[8]

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7. Hufbauer, "An Overview," pp. 42-43.

8. U.S. International Trade Commission, *The Effects of Greater Economic Integration Within the European Community on the United States: Second Follow-Up Report*, USITC Publication 2318 (September 1990).

The Transformation of Eastern Europe and German Unification

The short-run effects of the transformation of Eastern Europe on specific U.S. industries and consumers will result primarily from the need for financial and capital investment in Eastern Europe. The most modern capital goods are generally available only in the industrialized capitalist countries, and therefore the investment-goods industries of those countries should prosper. U.S. investment-goods industries may do well, but not necessarily. If Western Europe's investment-goods industries lack adequate capacity to handle all of the demand, then the U.S. industries will almost certainly benefit; but if Western Europe's industries do have adequate capacity, their close proximity to Eastern Europe and consequent lower transportation costs and quicker deliveries could allow them to take most of the business. In that case, the resulting demand for Western European currencies would cause them to rise in value, inducing Western Europeans to import more goods and services from the United States and other countries. Whether these goods and services would include substantial amounts of investment goods is unclear.

Higher world interest rates are likely to offset to some extent any benefits to U.S. investment-goods industries from the economic development of Eastern Europe. Higher interest rates would reduce investment and construction in the United States, with a negative effect on the investment-goods and construction industries.

Because per capita GNP in Eastern European countries is so low relative to that in the industrialized capitalist countries, labor in Eastern Europe is relatively inexpensive. Thus, Eastern Europe should have a comparative advantage in industries that are sensitive to labor costs. It could provide significant competition for similar industries in the United States.

German unification is basically a merger of the former East Germany with the EC, accompanied by a capitalist transformation of the East German economy; hence, its effects on U.S. industries and consumers should be similar in kind to those outlined above for EC92 and the transformation of Eastern Europe. In Germany the changes will be accelerated, however, and eastern Germany's comparative

advantage in labor-intensive industries will be less than that of other Eastern European countries because workers can easily migrate westward to higher-paying jobs if their employers do not pay wages comparable with those paid elsewhere in Germany.[9]

The following case studies are illustrative of some of the more significant areas in which problems may arise for U.S. producers and consumers.

THE AEROSPACE INDUSTRY

The aerospace industry includes manufacturers of aircraft, aircraft components, space-launch vehicles, and commercial satellites. Recent economic changes in Europe present the U.S. aerospace industry with both new market opportunities and potential competitors. The specifics of EC92 are likely to be less important for the industry than the ongoing process of European economic integration of which EC92 is a part. The opening of the Eastern European and Soviet markets may ultimately offer new opportunities to U.S. producers. In the next 10 years, however, Soviet producers of aircraft, space-launch vehicles, and satellites may be entering the world markets.[10] Many U.S. and European firms competing in these markets are currently under pressure because of falling defense expenditures. German unification is unlikely to have any direct effect on the U.S. aerospace industry.

Economic Integration, EC92, and the Aerospace Industry

The market for aerospace goods favors mergers and consolidations among European producers and between European and U.S. producers. EC92 is not likely to change this. On the demand side, the creation of a single European market offers opportunities to U.S. firms acting either

9. Wages in eastern Germany do not have to be exactly the same as in the rest of Germany to hold workers because the cost of living may not be exactly the same. In the United States, wages and the cost of living vary geographically.

10. Although the rest of this study does not discuss the effects of changes in the Soviet Union on the U.S. economy, in the case of the aerospace industry these effects are so important that they cannot be ignored.

on their own or in partnership with European firms. There is a risk, however, that the emerging single European aerospace market will be surrounded by a wall of protectionist policies. The trend toward mergers and joint ventures among U.S. and European firms, however, should limit the effectiveness of such trade barriers.

Mergers, consolidations, and joint ventures among European aerospace producers have been encouraged by overcapacity, potential economies of scale in production, rising research and development costs for new systems, and the expectation of a single European market in 1992. Explicit government policies to promote such consolidations have also played, and could continue to play, a major role. A recent study by the European Commission encouraged further consolidation in the production of small and medium-sized aircraft, civilian jet aircraft, and helicopters.[11]

The firms that have emerged from past consolidations are seen by the EC and EC member governments as better able to compete with U.S. producers, not only in the unified European market, but also globally. In 1989, the United States enjoyed an aerospace merchandise trade surplus with the EC in excess of $3 billion.[12] Globally, U.S. aerospace vehicles and equipment are forecasted to lead other U.S. merchandise exports in 1990, with projected sales of $33 billion.[13] Thus, the rise of new and more competitive European aerospace producers could ultimately have significant implications for U.S. trade.

Recent private-sector consolidations have included the merger of the Italian firms Selenaia and Aeritalia, and the creation of Deutsche Aerospace. The newly created Deutsche Aerospace is one of 10 companies in the Daimler-Benz group. It was created by combining Motoren- und Turbinen-Union, Telefunken System und Technik, and Dornier. Subsequently, Messerschmitt-Boelkow-Blohm was added to the group. The latter addition required direct approval from the German government to overcome the opposition of the German Cartel

11. Commission of the European Community, *A Competitive European Aeronautical Industry* (Brussels: 1990).

12. Department of Commerce, *1990 U.S. Industrial Outlook*, p. 25-8.

13. Department of Commerce, *1990 U.S. Industrial Outlook*, p. 25-2.

Office. British Aerospace and Thomson-CSF will jointly produce guided missiles if the European governments approve the venture.

In addition to these recent private consolidations in the aerospace industry, direct governmental actions have created enterprises that receive continuing public-sector support. The Airbus Industries aircraft production company and Arianespace, the EC's space-launch company, are both examples of such "EC champions," which were set up to compete in world markets. Created in 1968, Airbus Industries brings together British Aerospace, Aerospaciale, Deutsche Airbus, CASA, and these companies' respective governments in a commercial aircraft manufacturing venture designed to compete with the U.S. firms, Boeing and McDonnell Douglas. Currently, Airbus has about 25 percent of the global market. Arianespace, a similar entity, produces rockets that launch commercial communications satellites. It holds over 50 percent of the world market, which is forecast to vary between $800 million and $1.3 billion annually during the 1990s.

The commercial aircraft and space-launch vehicles marketed by Airbus and Arianespace were developed at public expense. New product development activities by both entities continue to receive public funds. These combinations were undertaken to better the position of European industry in global markets. Each has been effective in limiting the market share and profits of U.S. producers. Consumers, including those in the United States, have benefited from lower prices for aircraft and space launches.

EC92 includes a policy intended to control mergers and acquisitions. When set in place, the policy is not likely to have a significant direct effect on U.S. aerospace exporters.[14] It could, however, be used as a vehicle to limit the acquisition of EC firms by U.S. investors. Such limitations would be consistent with the policy of EC governments to promote EC champions in various parts of the aerospace industry by extending public subsidies.

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14. U.S. International Trade Commission, *The Effects of Greater Economic Integration Within the European Community on the United States* (July 1989), pp. 9-16 and 9-17.

The opportunities offered to U.S. aerospace firms by the creation of a unified EC market in 1992 are limited by the heavy involvement of EC governments and government-owned firms as buyers of aerospace products. Public spending, by one means or another, is likely to be guided by a "buy European" philosophy. But EC subsidiaries of U.S.-headquartered multinational firms, and U.S. firms participating with EC firms in specific ventures, will enjoy the same opportunities as strictly EC firms to lower their costs and make their operations more efficient as a consequence of the unified market offered by EC92.

Eastern European and Soviet Transformation and the Aerospace Industry

The political events leading to economic change in Eastern Europe and the Soviet Union affect U.S. aerospace producers negatively because they result in lower defense spending, thereby reducing demand for the industry's products. But the economic transformation of these countries presents the U.S. aerospace industry with potential new markets, investment opportunities, and competitors. Demand for U.S. products will grow, depending on the success of economic reform in these countries and the resultant growth in their national incomes. The attractiveness of the region as a location for new investment rests on the availability of both production workers and specialized engineering labor. Opportunities are open to U.S., European, and Japanese producers. Deutsche Aerospace and Mitsubishi are currently exploring an aircraft production venture involving the Soviet Union. Pratt and Whitney, the U.S. manufacturer of aircraft engines, is negotiating sales of its engines for use in Soviet commercial aircraft, and the licensing of Soviet production of engine parts.

The effects of new aerospace investment in Eastern Europe and the Soviet Union are likely to be felt more in the distant future than during the 1990s. More immediate consequences could result from the entry of the Soviet Union into the commercial space-launch business. The capability of Soviet industry in this area is as substantial as that of any country in the world. In the past 10 years, the Soviet Union has launched three to four times more satellites into space each year than the rest of the world. Currently, the Soviet Union is considering plans

to offer vehicles from either Soviet or non-Soviet sites (to avoid lingering Western concerns about technology transfer) at very competitive prices. A subsidiary of the U.S. firm United Technologies, USBI, has expressed interest in operating a launch site in Australia using Soviet vehicles. A consequence of Soviet success in this market would be lower revenues for U.S. rocket producers in the commercial market, principally McDonnell Douglas and General Dynamics. But Arianespace, as the market leader, could suffer more substantial losses. As in the other cases in which new competitors offer lower prices, the consuming industries and governments would benefit from increased price competition.

AGRICULTURE

All of the changes in Europe have the potential to affect the economic well-being of U.S. agriculture, though the short-term ramifications may not be very substantial. For agriculture, as for other sectors, the most significant effect is likely to come from EC92. Specifically, if EC92 causes the subsidies provided to European farmers through the Common Agricultural Program to be reduced, U.S. agriculture could benefit. In addition, the interplay of EC92, Eastern European liberalization, and German unification could magnify their individual impacts.

EC92 and Agriculture

European economic integration could affect U.S. agriculture by inducing changes in the Community's Common Agricultural Policy (CAP), in national taxation and agricultural policies, or in the EC's negotiating strategy in the General Agreement on Tariffs and Trade (GATT). With respect to the GATT, the impact of EC92 may be felt in the current Uruguay Round and most certainly will be a factor in future rounds.

How EC92 May Affect the CAP. The CAP is one of the few existing examples of European economic integration. (The central features of

BOX 2
Key Features of the European Community's Common Agricultural Policy

The *intervention price* provides a price floor for products covered by the CAP. Among the commodities with an intervention price are wheat, feed grains, rice, sugar, and wine. The intervention price is generally set substantially above world prices.

The *variable levy* supports the high intervention prices by adjusting import duties in response to changes in world prices. The variable levy ensures that the prices of commodities entering the EC are somewhat above the intervention price. It also ensures compliance with one of the basic principles of the CAP: a preference for products produced in the Community.

Finally, *export restitutions*, or export subsidies, are used to help dispose of any excess production that results from the high intervention prices.

the CAP, including the intervention price, the variable levy, and export restitution payments, are described in Box 2.) Its centrality to European economic integration is shown by the fact that spending on the CAP accounted for 70.2 percent of total spending by the EC in 1988, 66.2 percent in 1989, and an estimated 64.2 percent in 1990. Although EC92 is not likely to affect the core features of the CAP directly, it may do so indirectly. For example, it could give rise to competing budgetary demands. This possibility will be developed more fully in the final portion of this section.

The uniformity with which European farmers are treated by the CAP is undermined, to a certain extent, by three factors: the "green rates," monetary compensatory amounts (MCAs), and national production quotas on some commodities (principally sugar and milk). The CAP defines the intervention price in terms of the European Currency Unit (ECU), the value of which is calculated as a weighted average of all the members' currencies.[15] "Green exchange rates" are then used to convert this ECU price into the local-currency price for each member country. The green exchange rates, which may differ

15. The value of an ECU relative to the dollar changes in response to changes in the exchange rates between the dollar and the European currencies that make up the ECU. For example, according to the 1989 report of the European Commission on the agricultural situation within the EC, one ECU was equal to about $1.22 at the beginning of 1987, and $1.41 by the end of that year.

from the official exchange rates, allow the level of support to differ for a given commodity among the individual countries in the EC. MCAs are border taxes used to keep agricultural commodities produced in countries with lower support prices from flowing into member countries with higher support prices and thereby increasing the overall cost of the CAP.

The aspects of the CAP that provide for differential treatment of farmers in different countries will be difficult to maintain if the free flow of goods envisaged in EC92 is achieved. For instance, if there were no border controls, and therefore no MCAs, the ability to use green rates to maintain different support prices in different countries would seem limited. Likewise, the ability to maintain different prices by means of production quotas in the face of the free movement of goods would be reduced. If the level of support among countries within the EC is equalized and existing budgetary constraints on agricultural spending are observed, EC92 could result in a redistribution of resources in the agricultural sector. For example, the price of feed wheat in Germany would have dropped by more than $30 per ton, a decline of roughly 13 percent, for the 1988-1989 season if the actual exchange rate had been used instead of the green rate.[16] As a result, some of the more inefficient wheat farmers in Germany would probably stop producing wheat. Whether this would reduce total wheat production in the EC, and hence offer a potential for increased U.S. exports, is unclear.

National Taxation and Agricultural Policies and EC92. The CAP's unifying force is also undermined by taxation and agricultural policies pursued by the individual countries within the EC. Taxes on inputs and regulation of sectors related to agriculture, such as transportation and finance, differ in the EC. EC92 could require harmonization of these national policies. In addition, the individual countries within the EC operate national agricultural support policies. Estimates of spending on national agricultural programs vary from 66 percent to

16. See David Kelch and Walter Gardiner in Department of Agriculture, *National Food Review*, vol. 12, issue 4 (1989), p. 15

100 percent of the roughly $30 billion per year spent on the CAP.[17] It is unclear how EC92 will affect the level of spending on these national agricultural policies, but it could change the nature of the support offered. For example, support based on the level of production (which would be difficult to administer in an open market) might be transformed into direct income supports. Since direct income transfers offer fewer inducements to expand production, they have less disruptive impacts on international commodity markets.

Implications of EC92 for the Uruguay Round. The link between EC92 and the GATT negotiations is probably more important for agriculture than for other sectors. In large measure, agriculture has been exempted from previous rounds of GATT negotiations because of the exclusions for agriculture agreed to in earlier rounds and the perceived difficulty of liberalizing trade in this sector. As a result, trade distortions are probably greater in agriculture than in virtually any other sector. Agricultural or agriculturally related issues are also proving to be some of the most difficult to resolve within the EC92 process. EC92 and GATT may prove mutually accommodating, but there is also potential for conflict.

One area in which the interests of the Uruguay Round and EC92 may coincide is food health and safety regulations. Harmonization of health and safety standards is a stated objective of both processes. For EC92, the countries have generally agreed to define minimum necessary standards for health and safety that will be recognized by all countries within the Community. Difficulties in putting this procedure into effect have arisen for a number of reasons:

- Countries within the Community are interpreting the minimum necessary requirements differently;
- EC consumers and scientists differ in their definitions of health and safety standards; and

17. The lower estimate comes from Kelch and Gardiner. The upper estimate comes from Robert Saint-Louis of Laval University, Quebec, in remarks presented at the 1990 American Agricultural Economics Association meetings in Vancouver, B.C.

- No European equivalent of the Food and Drug Administration exists that could serve as a central body to resolve regulatory disputes.

The difficulty that the EC is having in reaching an agreement on health and safety standards within the context of EC92 has both positive and negative implications for the GATT. The fact that the Community has the motivation to address this very complex set of issues for its own internal reasons bodes well for the GATT. In the absence of an international agreement, health and safety regulations could be used as nontariff barriers to trade.

Because agreements on health and safety are proving so difficult to achieve for EC92, however, the likelihood that the EC will accept modifications sought by its negotiating partners in the GATT is remote. For this reason, the nature of the EC92 standards and the process by which they are determined are of vital interest to the United States. The stance taken by the EC that social and economic considerations, in addition to scientific evaluations, be considered in setting health and safety standards is therefore quite troubling. For example, one of the major reasons cited by the EC in banning the importation of red meat products produced using man-made hormones was that they were not acceptable to the population. Similarly, the EC is considering a ban on bovine Somatotropin, a growth hormone that enhances milk production, on the basis of the social disruption this product might cause in the dairy sector.

There are three other general areas of discussion in the agricultural portion of the trade negotiations: market access, internal supports, and export subsidies. With respect to these concerns, there appears to be less commonality of interests between the United States and the EC. The U.S. proposal calls for 75 percent reductions in impediments to market access and in internal support levels, and a 90 percent reduction in export subsidies, all phased in over 10 years. The EC proposal calls for 30 percent reduction in internal support levels, a smaller reduction in market access barriers, and does not address export subsidies. (Negotiators for the EC insist that reducing internal supports will automatically result in lower export subsidies. The validity of this assertion has not been determined.)

The largest potential source of conflict between the GATT and EC92 is that both will compete for policymakers' time and attention. It is also probably true that if a European policymaker has to choose between succeeding in the agricultural negotiations in GATT or in EC92, then EC92 will prevail. In general, the contemporaneous nature of these two processes may diminish the flexibility of the EC in the GATT negotiations and in the subsequent interpretation and carrying out of an agreement.

Implications of EC92 for U.S. Agriculture. The bottom line is that EC92, by itself, is unlikely to change the basic character of the CAP and, therefore, is unlikely to dramatically affect the fortunes of U.S. agriculture. As noted, some modifications to the internal workings of the CAP will be required by EC92, but the basic structure of high intervention prices, variable levies, and export subsidies is likely to remain intact. Thus, the short-term implications of EC92 are likely to be relatively small.

EC92 offers some potential benefits for U.S. agriculture. First, as noted, some national agricultural policies will have to be eliminated or modified. To the extent that national subsidies are reduced or changed into a form that distorts production decisions less, U.S. agriculture could realize some benefits (for example, greater exports to third countries). The food health and safety regulations that will emerge from EC92 may also bring benefits. While the standards and procedures adopted may not be ideal from a U.S. perspective, they are likely to reduce the complexities faced by food product manufacturers seeking to export to the EC. The standards may differ from those in the United States and may incorporate additional criteria, but in each case there will be only one standard, at least in theory, rather than the 12 that could currently face an exporter hoping to penetrate all of the markets in the EC.

Eastern European Changes and Agriculture

Eastern Europe has great potential as an agricultural producer. Many farming areas are blessed with good soils. The large state or collective

farms, though notoriously inefficient, may offer economies of scale when modern farming techniques are introduced.

The ultimate disposition of land ownership in the state and collective farms is one of the central agricultural issues facing most of the new governments in this region. (The sole exception to this generalization is Poland, where title to the land remained mostly in private hands.) State farms and collective farms pose somewhat different problems with respect to reallocating titles. Collective farms were generally formed from land previously held by individuals. Title to land in collective farms could be distributed in a number of ways: farms could continue to be farmed cooperatively; the land could be leased to members of the cooperatives; it could be sold to cooperative members with compensation given to previous owners; or it could be returned to previous owners. In contrast, many state farms were created on land held by institutions such as the church or previous governments. Options that are being considered for these farms include complete privatization, creation of agribusiness firms with share ownership, and creation of public or communal farms. Secure title to the land is deemed important because many experts assume this will help spur agricultural productivity.

Clear title may be a necessary condition for increased agricultural productivity, but it is probably not enough to ensure this result. Most observers believe that the development of market incentives and institutions, infrastructure, and an entrepreneurial spirit will also be necessary to achieve significant improvements in agricultural productivity in Eastern Europe. These institutions and social conventions may require years to develop fully. If and when they do, agricultural output could increase significantly in the long term.

At present it is uncertain how these countries will resolve the land title issue and what type of market structure will develop. Thus, it is difficult to determine how the changes in Eastern Europe will affect U.S. agriculture, either as a market for U.S. agricultural goods or as a potential future competitor.

Increasing exports of agricultural goods to Eastern Europe will be subject to a number of constraints: lack of foreign exchange, heavy

foreign debt loads for some countries, relatively poorly developed infrastructure, and lack of technical expertise at the farm level. In addition, many of these countries appear to be focusing on the EC as a more natural trading partner, given its geographic proximity and the potential economic benefits of joining the EC at some future date.[18] In the medium term, Eastern Europe is likely to remain a relatively minor market for U.S. commodities and food products, although it may offer relatively small markets for U.S. producers of agricultural inputs (fertilizers, chemicals, machinery), processed food products, and technical expertise.

Similarly, the countries of Eastern Europe are unlikely to be major competitors in world commodity markets during the next decade. They will have a strong incentive to increase agricultural exports in order to earn foreign exchange and to repay outstanding debt. However, just as the lack of infrastructure will impede U.S. exports to this region, so too will it restrict their exports. In addition, it is unclear how much time will be required to resolve the land tenure issue or to develop the other market institutions (banks, brokerage houses, product standards) so necessary for international trade.

German Unification and Agriculture

German unification presents a microcosm of the issues already discussed with respect to EC92 and Eastern Europe. Agriculture in the former East Germany is now covered by the CAP (and by German national agricultural policies). In this sense, German unification presents the same challenges and opportunities to U.S. agriculture as were discussed in the section dealing with EC92. At the same time, the issues (inefficient farms, lack of entrepreneurs, poorly developed market institutions) that face Poland, Hungary, Czechoslovakia, Romania, and Bulgaria, also face eastern Germany to one degree or another. In short, because the area is a relatively small market and now lies within the barriers posed by the CAP, German unification is

18. Some Eastern European countries have expressed an interest in joining the EC. Their entry could prove vexing for the CAP since they generally produce the same products that are currently in greatest surplus (wheat, milk, barley), and thus would put tremendous strains on the CAP budget.

unlikely to affect U.S. agriculture in a significant way for the foreseeable future.

Interactions of EC92, Eastern European Changes, and German Unification

In the foregoing sections, each of the three transformations taking place in Europe was discussed separately, but these changes may interact with each other in ways that could significantly alter the overall outcome. Specifically, economic integration in Western Europe and the dramatic changes occurring in Eastern Europe could significantly increase budgetary pressures on the CAP, and could undermine the rationale for spending such a large proportion of the EC's budget on agriculture.

Europeans have long argued for preserving the CAP as a leading symbol of EC integration. After EC92, this argument will have much less validity. At the same time, the increasing diversity of the Community will create pressures to reallocate spending priorities within the EC.

For example, German unification may present unique difficulties for the Community. Historically, there appears to have been an implicit understanding between Germany and France on the operation of the CAP. Germany wanted high internal prices to support the politically powerful but economically vulnerable farmers of Bavaria. France, in compensation for the loss of agricultural markets within Europe, demanded export subsidies to enable it to compete for markets elsewhere in the world. So long as Germany was willing and able to pay the costs of this arrangement, everyone was satisfied. With unification, however, German agriculture could be dramatically reshaped. The potentially more efficient farmers of eastern Germany could put significant budgetary pressures on the CAP because they tend to produce those items in greatest surplus. With German farmers receiving more from the CAP and with demands on German fiscal resources increasing (to pay for the Soviet military withdrawal and the upgrading of industry in eastern Germany, for example), the implicit agreement between France and Germany may be weakened, and its unraveling

could have profound implications for EC92 and future GATT negotiations.

The changes in Eastern Europe are also likely to increase competition for funds within the EC. The prospect of an impoverished, politically volatile group of countries in the East cannot be ignored--the more so as the Community would undoubtedly like to position itself to dominate this potentially lucrative market. Further, the environmental problems of Eastern Europe are well known, and will provide a rallying issue for environmentalists in the EC. In addition, the environmental costs of the CAP (whose high support prices induce excessive use of agricultural chemicals) are becoming more widely appreciated within the Community. Significant amounts of capital will be required to address all of these concerns.

If the EC is to approach these problems on a multilateral basis, it will have to reassess its spending priorities or else seek additional revenues. To the extent that the CAP ceases to be the defining characteristic of the EC, the Community might be willing to use this source of funds to pursue other interests in Eastern Europe. American agriculture could benefit from a reduced subsidization of European agriculture.

The EC's ambitious agenda could also result in focusing the Community's attention on its own political and economic concerns. How this would affect U.S. agriculture would depend largely upon whether any changes were made in the CAP.

AUTOMOBILES

The changes in Europe will have little effect on the U.S. automobile market or on U.S. domestic auto producers, at least initially. The changes will primarily affect the European subsidiaries of U.S. multinational automakers. U.S. multinationals are likely to benefit from both EC92 and the changes in Eastern Europe. Eastern Germany by itself is too small to have much effect on U.S. automakers. Hence, German unification should have little effect other than to accelerate

and accentuate within Germany the effects that occur throughout Eastern Europe.

The initial effects on U.S. auto exports will be minimal because such exports are currently small. Because exports are growing, however, and will probably continue to do so, the effects on them could become significant over time. It is important to distinguish between the effects on European subsidiaries of U.S. firms and the effects on firms that produce in the United States and export to Europe. European subsidiaries of U.S. firms will benefit if competing imports are kept out, even if those imports come from the United States.

Historically, U.S. auto exports to Europe have been insignificant both in comparison with shipments by U.S. domestic producers and in comparison with sales of European affiliates of U.S. automobile companies. In 1988, exports to the EC amounted to only $575 million, substantially less than 1 percent of the value of shipments by domestic producers. In contrast, Ford has 22 plants in Europe with total sales of $17 billion and profits of $1 billion, and General Motors has 6 vehicle-assembly plants and 19 component-manufacturing operations there.[19] Ford's share of the EC market in 1988 was 11.3 percent, placing it fourth behind Volkswagen, Fiat, and Peugeot group. GM's share rose from 10.5 percent in 1988 to 11.2 percent in 1989.[20]

Exports to Europe are increasing. Between 1984 and 1988, exports to the EC increased more than eightfold.[21] Chrysler, having no manufacturing facilities in the EC, has begun to stress exports to Europe, exporting 31,000 cars in 1988 and 50,000 in 1989. It plans to export 100,000 annually by 1992.[22] It is possible that, as production by Japanese-owned plants in the United States increases, some of that

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19. U.S. International Trade Commission, *The Effects of Greater Economic Integration Within the European Community on the United States*, USITC Publication 2204 (July 1989), pp. 4-28 and 11-11.

20. U.S. International Trade Commission, *The Effects of Greater Economic Integration Within the European Community on the United States: First Follow-Up Report*, USITC Publication 2268 (March 1990), p. 11-7.

21. U.S. International Trade Commission, *The Effects of Greater Economic Integration Within the European Community on the United States*, USITC Publication 2204, p. 11-10.

22. U.S. International Trade Commission, *The Effects of Greater Economic Integration Within the European Community on the United States: First Follow-Up Report*, USITC Publication 2268, p. 11-6.

production will also be exported to Europe. Since only the profits of overseas operations benefit Americans, whereas the profits (except in the case of Japanese-owned plants), rents, and wages and salaries from exports all benefit Americans, exports can be significant to the United States even if they are substantially smaller than sales of U.S. companies' foreign operations.

EC92 and Automobiles

In order to create a unified and competitive automobile market, the EC is harmonizing the technical regulations and value-added and excise taxes imposed by the various member countries and is placing controls on state aid to the industry. It is also unifying its regulation of automobile trade with countries outside the EC--in particular, with Japan. U.S. automakers feel that they will benefit from these changes. In addition, the overall economic growth resulting from EC92 should contribute to improved sales for all automakers, domestic or foreign.

Unification of the EC Automobile Market. The EC automobile market is actually a collection of separate national automobile markets. In a number of EC countries the market is dominated by the home country's own automobile firms, and many EC firms' sales are highly concentrated in their respective home countries. This dominance by and of "national champions" is less pronounced than it used to be but is still substantial.[23] Its persistence, along with large differences in car prices among EC countries, is promoted by a number of barriers to trade. Each country has its own technical standards and certification, so an automobile produced for one country cannot be sold in another without modification and recertification. Further, the various EC countries levy substantial taxes on the production and sale of automobiles, and these taxes vary significantly from country to country.

23. In 1988, Peugeot group and Renault together had 63 percent of the French market (compared with 9 percent for the second-place Volkswagen (VW) group); Fiat group had 60 percent of the Italian market (compared with 12 percent for the second-place VW group); and VW group had 29 percent of the German market (compared with 18 percent for specialist producers, some of which are German, 15 percent for GM, and 15 percent for Japanese producers). The French market absorbed 49 percent of Renault's production and 45 percent of Peugeot group's production; the Italian market absorbed 68 percent of Fiat group's production; and the German market absorbed 43 percent of VW group's production. See Alisdair Smith and Anthony J. Venables, "Automobiles," in Hufbauer, pp. 122-123.

Because the taxes may vary with engine or automobile size, they promote the production of certain sizes of engines and automobiles for the countries that impose them, and these sizes are different for the different countries. Finally, European countries have long provided aid to their national-champion automobile firms. For example, the Spanish, British, and French governments have written off debts to SEAT, Rover group, and Renault, respectively.[24]

The removal of barriers, the prohibition of state aid, and the consequent creation of a unified market and "level playing field" should be beneficial to U.S. automakers. They believe that EC92 will enable them to increase sales in the more protected markets such as Spain, Italy, France, and Portugal. In a newly unified market, Ford and GM will be at an initial advantage over their European rivals as a result of having greater experience with EC-wide operations. Ford's and GM's sales are more evenly distributed among EC countries than are those of their European competitors; and the American firms should be better able to shift production among countries to limit costs. Further, Ford and GM are more efficient than most of their European competitors. One report ranking European car-assembly productivity for 1987 (excluding that of Japanese-owned facilities) placed GM second (behind first-place Peugeot group) and Ford fourth (behind third-place Fiat).[25] Finally, decreasing state aid to national-champion firms would obviously benefit U.S.-owned subsidiaries and exporters, who do not receive such aid.

Harmonization of Technical Standards and Certification. Harmonization of technical standards and certification will reduce costs for every firm doing business across Europe, whether the firm is a European-owned-and-located firm, a European subsidiary of a U.S. firm, or a U.S.-located producer that exports to the EC. The attempt at harmonization was first begun in 1970, and 41 of 44 required items were agreed upon with comparatively little trouble. However, it was feared by some in Europe that harmonization would lead to increased compe-

24. Smith and Venables, "Automobiles," pp 120-124, 131.

25. Euromotor Reports Ltd., "European Car Factory Report," as quoted in *Automotive News* (August 13, 1990), p. 25. Following Ford were Renault, Rover, Volvo, VW-Audi, Saab, BMW, Daimler-Benz, and Jaguar in that order. The report gave separate figures showing that Japanese productivity in 1988 was greater than that of GM in 1987.

tition from producers outside the EC, so the other three items have been held hostage for 12 years to settlement of external trade policy. Once this issue is settled and harmonization is completed, it will be possible to sell an automobile model throughout the EC on the basis of a single set of tests rather than a separate set for each country.[26]

Some concern has been expressed that the EC policymaking process may discriminate against U.S. automakers in favor of EC firms, but this does not appear to be a major problem. According to one study:[27]

> Ford of Europe and GM Europe are, in fact, excluded from membership in the Committee of Common Market Car Makers (CCMC), which is consulted about regulations and standards, but Ford and GM participate in national associations that come together in the Coordinating Council of European Car Manufacturers (CLCA). Moreover, just because of their exclusion from the CCMC, Ford and GM are sometimes consulted individually by regulators, when the CCMC members are consulted collectively.

On the whole, U.S. automakers are not happy with their access to the regulatory process and believe that the process is not as transparent as it should be, but they do not feel that the regulations that have resulted from that process discriminate against them.

External Trade Policy. Several issues of interest to the United States relate to the EC's treatment of automobiles produced by Japanese-owned firms. The first issue is that of restrictions on imports. Currently, national quotas of one sort or another (such as import quotas and voluntary restraint agreements) limit imports of Japanese cars to 11 percent of the British market, less than 3 percent of the French

26. Smith and Venables, "Automobiles," pp. 128-129.

27. Smith and Venables, "Automobiles," p. 146.

market, and less than 1 percent of the Italian, Spanish, and Portuguese markets.[28] Imports to the EC as a whole are also limited. Because EC92 will be eliminating all border controls, these national restrictions on Japanese imports cannot be maintained.

The 1985 White Paper that first proposed what is now called EC92 called for the elimination of national quotas and related border controls, and in December 1989 the EC announced that it would phase out all national quotas on automobile imports between January 1, 1991, and January 1, 1993. Such a phaseout would harm automakers located in the countries currently having the quotas, so the question has arisen whether or not to extend the quotas throughout the EC at least temporarily to cushion the blow. France and Italy in particular have pushed for such extension. The European industry wants the Japanese market share limited to 10 percent until 1997 or until there are significant increases in the European share of the Japanese market.[29] Consequently, some sort of transitional EC-wide restrictions on Japanese cars will be implemented, but the details have not yet been decided.

Ford, GM, and Chrysler would all clearly benefit (Ford and GM more so than Chrysler, since Chrysler has fewer sales and no European operations), just as any European-owned-and-located manufacturer would, from any restrictions on Japanese imports because such restrictions would reduce competition. In fact, the U.S.-owned firms might benefit more. Among producers of mass-market cars, U.S.-owned manufacturers have a reputation for quality that is superior to that of the European manufacturers and inferior to that of the Japanese. Restricting Japanese sales should thus help U.S. firms capture the quality end of the mass market.

Restrictions on Japanese imports would also help Japanese-owned plants in the United States improve their exports to Europe--provided those exports are treated by the EC as U.S. exports, which will not be

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28. The Japanese shares of the Italian and Spanish markets are actually somewhat larger than 1 percent because additional Japanese cars are imported indirectly through EC countries that have no quotas. The EC Commission limits such indirect imports. For 1990, the limits are 17,000 cars for Italy (the direct import quota is 2,500) and 7,800 cars for Spain.

29. Smith and Venables, "Automobiles," pp. 138-139.

restricted, and not as Japanese exports, which will be restricted. How these exports will be treated by the EC has been an issue of concern in the United States. Obviously, it is in the U.S. interest that they be treated as U.S. exports.

The EC restrictions on Japanese imports could also divert to the U.S. market automobiles produced in Japan that otherwise would be exported to the EC. Such diversion would put downward pressure on automobile prices in the United States and thereby harm U.S. domestic automakers and benefit U.S. consumers.

The precise features of the policy on Japanese imports and on Japanese automobiles produced in Europe have not been decided by the EC, but current speculation is that:

- The Japanese market share will initially be limited to 10 percent and possibly be allowed to increase to between 14.5 percent and 18.0 percent by 1997 or 1998;
- The restrictions will last 5 to 10 years;
- Individual EC countries will be monitored to prevent surges of imports in particular countries;
- Automobiles produced by Japanese-owned plants in the EC will be included in the market-share restrictions, though possibly not on a one-for-one basis; and
- Automobiles produced by Japanese-owned plants in the United States will not be included in the market-share restrictions.

Eastern European Changes and Automobiles

The opening of markets in Eastern Europe offers a significant long-run opportunity for the developed world's automakers, and U.S. automakers are already positioning themselves to take advantage of it. Table 17 indicates that, as measured by the total motor-vehicle stock,

the Eastern European automobile market is currently quite small. At 14.6 million vehicles, it is only one-twelfth that of the United States. The region has only one motor vehicle for every 8.1 people, whereas the EC has one for every 2.6 and other developed countries have similar ratios. As the Eastern European economies develop over the next several decades, the region's ratio will presumably grow to a level approaching that of the EC. That would mean (assuming no population

TABLE 17. MOTOR-VEHICLE STATISTICS, 1986

Country	Ratio of Population to Motor Vehicles	Total Motor-Vehicle Stock (Millions)	Total Motor-Vehicle Stock if Country Had EC's Ratio (Millions)
United States	1.4	176.2	n.a.
Canada	1.7	14.7	n.a.
Japan	2.5	48.0	n.a.
European Community	2.6	124.2	n.a.
East Germany	4.5	3.7	6.4
Eastern Europe	8.1	14.6	45.8
Czechoslovakia	5.0	3.1	6.0
Hungary	6.0	1.8	4.1
Bulgaria	7.1	1.3	3.5
Yugoslavia	7.4	3.2	9.0
Poland	7.7	4.9	14.5
Romania	57.1	0.4	8.8
Mexico	10.9	7.5	31.5
Brazil	12.0	11.9	55.2
USSR	13.8	20.2	107.5

SOURCE: Motor Vehicle Manufacturers Association of the United States, Inc., *World Motor Vehicle Data* (Detroit, 1989).

NOTE: n.a. = not applicable.

change) a total Eastern European stock of 45.8 million vehicles, or one-fourth that of the United States. Thus, there is substantial potential for growth in this market.

All three U.S.-owned automakers should benefit from the opening of Eastern Europe, although Chrysler, having no production facilities and little experience in Western Europe, is less able to take advantage of the opportunities. There is no reason to think that Ford and GM could not eventually achieve percentages of the Eastern European market comparable with those they have in Western Europe. Ford and GM have already begun to set up manufacturing plants and joint ventures in Eastern Europe. To take full advantage of the opportunities there, an automaker needs to be ready with car models that are suited to a market in which most consumers are substantially less affluent than those in Japan, the United States, and the EC. The experience of Ford and GM in the Spanish and Portuguese markets, which are less affluent than most of the rest of the EC, should help them in this regard.[30] Eastern European producers should provide little immediate competition.[31]

SEMICONDUCTORS

By and large, U.S. semiconductor firms have had a history of success in selling to the EC, and the general trend is likely to be for further opening of trade, although protectionist measures have raised concerns among the U.S. industry and policymakers. The EC is the largest U.S. export market for semiconductors, and U.S. firms control over 40 percent of the market there. The changes in Eastern Europe and the unification of Germany have not presented U.S. policymakers with major issues in the area of semiconductors, so this section concentrates on the effects of EC92.

30. In 1988, Ford had 13 percent of the combined Spanish and Portuguese markets and GM had 14 percent. See Smith and Venables, "Automobiles," p. 122.

31. In the former East Germany, demand for the Trabant, an East German car model that once had 15-year backlogs, has disappeared because the car is considered inferior to used cars available in West Germany.

The EC has already adopted regulations regarding the national origin of integrated circuits that specify where certain of the manufacturing steps must occur if the chip is to be considered "European." Coming against the background of a long-term decline of the EC position in semiconductors, the new regulations have proved to be a lightening rod for U.S.-company concerns about EC92. If attempts to strengthen EC semiconductor producers through subsidies fail, then the governments may turn to using the new regulations as a way of protecting their industry. With some notable exceptions, however, the bulk of their protectionist import regulations have been directed at Japanese producers, sometimes directly copying the details of protectionist U.S. policies.

One factor mitigating the protectionist policies is that many of the more obvious barriers to trade can be easily circumvented. For example, the import tariff on integrated circuits is 14 percent. But if a company certifies that there is no domestic equivalent, it can receive an exception, and a substantial fraction of chips enter through this avenue. (The exception would be more useful to U.S. firms, which specialize in unique logic chips, than to Japanese firms, which specialize in commodity memory chips.)

Rules of Origin

The worldwide standard for determining the nationality of a semiconductor chip has been the location of the last substantial economic transformation (usually final assembly and testing).[32] In February 1989, however, the EC Commission decided that the origin of a chip would be determined by the location at which a certain manufacturing step--the diffusion of the chemical elements that defined the electronic circuit elements into the silicon--took place.[33]

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32. This section is largely derived from Kenneth Flamm, "Semiconductors," in Hufbauer, pp. 225-292.

33. See Congressional Budget Office, *Using R&D Consortia for Commercial Innovation: SEMATECH, X-ray Lithography, and High-Resolution Systems* (July 1990), pp. 20, 21, and 116, for a description of diffusion and its role in semiconductor manufacturing.

Ironically, this change increases the share of U.S. semiconductors that qualify for treatment as European chips in the EC.[34] While U.S. firms have many wafer fabrication plants (where the diffusion is performed) in the EC, the U.S. testing and assembly plants are mainly in Southeast Asia. Thus, because they were shipped to areas with cheap labor for final processing, roughly three-quarters of the integrated circuits produced by U.S. companies counted as foreign chips under the old rules and 24 percent qualified as EC chips. Under the new rule, over 40 percent qualify as EC chips. In contrast, the share of chips produced by Japanese firms and qualifying as EC chips fell from 40 percent to 5 percent.

Despite the rise in the share of U.S. chips that qualify as EC chips, the representative of U.S. semiconductor producers, the Semiconductor Industry Association (SIA), object to the change. Part of the explanation has to do with the fact that gains were not evenly distributed in the U.S. industry, but rather were concentrated among producers who had earlier invested in EC fabrication facilities in accordance with individual market strategies.

Another part of the explanation has to do with the potential worldwide effect the EC rule change could have. Many more countries have assembly plants than have fabrication plants. And U.S. firms do not have many fabrication plants outside of the EC and Japan. Changes in rules of origin worldwide brought on by the EC example--that is, determining origin by where diffusion rather than final assembly is performed--might therefore be very costly to U.S. firms. Finally, the rules of origin interact (or could interact) with existing or future regulations on local content and trade in ways that are detrimental to some U.S. producers. Several countries in the EC have local content rules in areas that affect semiconductor sales, including telecommunications, government procurement, and automobiles.

34. See Flamm, "Semiconductors," pp. 271-273.

Collaborative Research

The EC will also have to decide whether to continue its major collaborative research efforts, which were started with great fanfare during the mid-1980s. Because of its continuing financial difficulties, N. V. Philips, the largest EC-based chip producer, one of the initiators of the project, has had to withdraw from major portions of the Joint European Submicron Silicon Initiative (JESSI), most notably from JESSI's effort to make the largest memory chip. Although Siemens--another major semiconductor producer--remains committed to JESSI, a clear question arises regarding the continuation of this project with the withdrawal of the largest potential user of the resulting technology.

This recent withdrawal may affect the future relationship between these efforts and similar efforts of U.S. producers, most notably through SEMATECH--the U.S. semiconductor research consortium. SEMATECH had initiated talks with JESSI about possible collaboration, although such collaboration might be more in the nature of doing complementary research than a formal working relationship. Philips's partial withdrawal from JESSI is bound to be a source of disruption within JESSI, as well as a source of concern to SEMATECH. The International Business Machines Corporation (IBM), the largest semiconductor producer in the EC, has begun to participate in JESSI, and is also a key member of Sematech.

If these R&D efforts fail to increase the competitiveness of EC semiconductor producers, the EC authorities may turn to more protectionist measures in their efforts to increase the role of EC producers in the world market. In the late 1980s, the EC found itself in the unhappy position of watching the producers and governments of the technological leaders, the United States and Japan, set the world price for dynamic random access memories (DRAMs), the most popular type of computer memory, without the EC having any say in the process. It would like to have a stronger industry to avoid a repeat of that situation. EC firms and policymakers, like many in the United States, believe that the path to technological and industrial strength in semiconductors lies in collaborative R&D and production ventures.

STEEL

Historically, the U.S. steel market has been more strongly affected by changes in domestic demand for steel than by international trade. Even in the early to mid-1980s, when the high value of the dollar resulted in a surge of steel imports, declining domestic demand was a bigger problem for the industry than import competition, and the share of imports in the U.S. market has declined every year since 1984. Nevertheless, an upward trend in the share of the U.S. market taken by imports over the several decades before 1984 had attracted attention and concern, prompting the federal government to negotiate quota agreements with most of the countries exporting large amounts of steel to the United States. These quotas were renewed in 1989 for 2½ more years.

There is no reason to expect much direct effect on the U.S. market and producers as a result of the changes in Europe, but even if there were an immediate surge in imports, the quotas would limit that surge through 1992 and thereby provide time for the U.S. industry and policymakers to react. Indirect effects will depend on EC regulations yet to be decided regarding industries that consume steel. U.S. exports of steel have been small for several decades, so this section focuses on U.S. imports.

EC92 and Steel

EC92 should have no direct effect on the market for steel in the United States. The EC has had a common steel policy since 1951, when the European Coal and Steel Community was formed. The quota agreement limiting EC exports to the United States covers the EC as a whole rather than the individual member countries, and so that agreement should not be affected. EC-wide import restrictions began in 1978. Individual EC countries have quotas restricting imports from most of the Eastern European countries, and these quotas will have to be either dropped or extended EC-wide once EC92 does away with the border controls necessary to enforce them. Even if they are extended EC-wide, there should be no substantial diversion of Eastern European steel to the United States because most of the Eastern European coun-

tries covered by quota agreements with EC countries are also covered by quota agreements with the United States. An encouraging sign is that in recent years the EC has eliminated many of the interferences with the steel market in which it has engaged historically.

EC92, however, could have indirect effects on the U.S. steel market, particularly on the trade of products, especially automobiles, that are made from steel. Japanese automobiles exported to the United States, for example, are made from steel produced in Japan. As they have gained a share of the market in the United States, they have replaced U.S. automobiles made from steel produced in the United States, thereby reducing the demand for U.S.-made steel. If the EC put up barriers to imports of automobiles made by Japanese-owned plants in the United States, the result would be a lower demand for U.S.-made steel than would otherwise be the case. Current speculation is that the EC will not put up such barriers, but the question has not yet been decided.

Eastern Europe and Steel

The changes in Eastern Europe should have little or no effect on the U.S. steel market in the short run. Exports to the United States from five Eastern European countries (Czechoslovakia, Yugoslavia, Hungary, Poland, and Romania) with 95.7 percent of Eastern European capacity (see Table 18) are limited by quota agreements. The remaining 4.3 percent is very small, equal in size to only 3.0 percent of U.S. capacity and only 3.3 percent of U.S. apparent consumption.[35,36]

Predictions for the long term are less certain. On the one hand, some observers have argued that the region does not have good supplies of coal and iron ore. On the other hand, the economics of steel

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35. Apparent consumption is equal to shipments by domestic manufacturers plus imports minus exports and thus is equal to total shipments to domestic markets by both domestic and foreign manufacturers. The difference between apparent consumption and consumption is changes in inventories.

36. The Soviet Union, however, has a very large steel production capacity. At 178.8 million metric tons, its capacity is larger than the individual capacities of the United States, Japan, and the EC. Thus, the Soviet Union could export enough steel to affect the U.S. market if it so chose.

production are sensitive to labor costs--a fact that gives an advantage to low-wage, labor-surplus countries such as those in Eastern Europe. Further, a lack of good indigenous raw materials is not an insurmountable barrier. For many years, Japan competed effectively by placing its steel mills adjacent to port facilities through which raw

TABLE 18. STEEL PRODUCTION CAPACITY, 1988

Country	Production Capacity (Millions of metric tons)	Open-Hearth Capacity (Percentage of total capacity)	Continuous Casting Capacity (Percentage of total capacity)
USSR	178.8	48.8	7.1
European Community	174.1	0.0	60.9
Japan	141.1	0.0	70.9
United States	101.8	6.5	62.7
Eastern Europe	71.8	34.0	16.3
Poland	24.7	53.6	7.4
Czechoslovakia	20.4	26.7	23.2
Romania	14.3	31.7	28.9
Yugoslavia	6.5	9.8	65.2
Bulgaria	3.1	11.4	64.1
Hungary	2.7	5.6	28.0
China (PRC)	60.9	33.4	11.8
Brazil	28.3	3.0	40.3
South Korea	18.6	0.0	73.7
Canada	17.9	0.0	50.8
Mexico	10.5	13.1	39.1
East Germany	8.4	44.2	23.9

SOURCE: Congressional Budget Office using data from David J. Cantor, *Steel Industries of Eastern Europe: Can They Compete With the West?* Congressional Research Service (August 24, 1990), pp. 3, 5, 7, 10, and 11; and The WEFA Group, *World Steel Forecast, Mid-Year 1989* (Bala Cynwyd, Pa., p. 5.96.

materials could be imported. In Eastern Europe, however, this option may be viable for only Poland and Yugoslavia, because Czechoslovakia and Hungary have no coastlines, and Romania and Bulgaria appear to be liberalizing less than the rest of Eastern Europe.

Eastern Europe, however, will not become a significant net steel exporter in the near future. Outmoded production facilities will have to be replaced, and local demand for the steel that is produced in and near the region is likely to increase to meet rising demand by consumers for such steel-containing items as automobiles. Table 18 indicates that 34.0 percent of Eastern Europe's production capacity is of the outmoded open-hearth type, compared with well under 10 percent for Western countries. Further, only 16.3 percent of Eastern European steel capacity uses modern continuous casting, compared with well over 50 percent for most Western countries. The outmoded Eastern European mills produce steel of relatively uneven quality and require more labor than do Western mills.[37] Such extra labor may be affordable at the current low wage rates in Eastern Europe, but it will not be when wages increase with development.

German Unification and Steel

In the short run, German unification should have little effect on exports to the United States, and any effect it may have will most likely be in the direction of fewer exports to the United States. The long-run effect is more difficult to predict because it depends on the policies of the German and EC governments.

Unification cannot have a large short-run effect because current eastern German production capacity is small--only 8.4 million metric tons, or 8.3 percent of U.S. capacity, in 1988 (see Table 18). Most of this steel would probably be used locally, and the remainder available for export would not be very significant to the U.S. economy. Further, exports to the United States are limited by the U.S. system of

37 According to the U.S. International Trade Commission, the Eastern European steel industry in 1989 employed nearly four times as many workers per ton of raw steel produced as the U.S. steel industry did. See International Trade Commission, *Monthly Report on the Status of the Steel Industry*, USITC Publication 2301 (August 1990), p. i.

"voluntary" quota agreements, which covers both eastern and western Germany (the latter through an agreement with the EC).

The quotas are currently going unfilled and, as a result of Germany's unification, the U.S. tariffs on eastern German steel have declined substantially, raising the possibility of an increase in exports to the United States. Any possible increase, however, would likely be more than offset by another effect arising from the combination of easy migration by German workers and the outmoded capital stock of eastern German steel mills. Easy migration will force eastern mills to pay wages comparable with those in western Germany. However, the eastern mills are inefficient. As indicated in Table 18, 44.2 percent of capacity in 1988 was open hearth, which is relatively labor intensive and outmoded, and only 23.9 percent used continuous casting. Thus, these higher wages will likely make the mills unprofitable and perhaps drive them out of business. If so, then exports of eastern German steel to the United States may decline or come to a halt.

In the long run, eastern German mills would have to modernize (by putting in basic-oxygen furnaces and continuous casters) to survive economically in the higher-wage environment of a developed German economy and to produce steel of the quality demanded. Such modernization would be expensive and probably not economical given the comparative advantage that less-developed countries have in industries that, like steel, are sensitive to labor costs.[38] Hence, if such modernization were to occur, it would most likely require subsidies. As in the case of Eastern Europe discussed above, further reductions in exports to the United States may occur as a result of increasing German demand for steel resulting from the development of eastern Germany.

38. The Congressional Research Service has estimated that at least $410 million of investment in basic-oxygen and electric furnaces and continuous casters would be necessary to bring eastern German steel mills up to the standards of the Western world. See David J. Cantor, *Steel Industries of Eastern Europe: Can They Compete With the West?* Congressional Research Service (August 24, 1990), p. 21.

TELECOMMUNICATIONS

In 1987, the EC committed itself to creating a seamless telecommunications system across Europe. This effort has two goals: first, to bring the benefits of new telecommunications technology, including lower costs and expanded services, to customers in the EC; and second, to create a single market large enough to permit EC-owned firms to become competitive internationally through economies of scale. These goals correspond with the ongoing trend toward integration by major equipment firms and conflict with a desire by the telecommunications authorities to protect their traditional turf. The result is likely to be a gradual, but uneven, liberalization in the markets. The major U.S. beneficiaries may not be the largest telecommunications equipment firms, but rather mid-sized firms able to provide specialized services to meet modern business telecommunications needs. The changes in Eastern Europe and the unification of Germany have not presented U.S. policymakers with major issues in the area of telecommunications, so this section concentrates on the effects of EC92.[39]

Liberalizing the Telecommunications Markets

The changes proposed in the organization of EC telecommunications markets reflect the tensions inherent in trying to liberalize a market in which entrenched economic interests hold major political power. Responsibility for the existing telecommunications network, including the monopoly on voice communications, will remain in the hands of the current authorities, which vary from country to country. But the power of the telecommunications authorities and monopolies will be limited. The rates customers can be charged are to be made uniform by mandating cost-based rates over the medium term. (This latter move will help foster a market in services based on leased lines, such as the

39. This section is largely based on Peter F. Cowhey, "Telecommunications," in Hufbauer, *Europe 1992*, pp. 159-224; James Foreman-Peck and Jürgen Müller, "The Changing European Telecommunications Systems," in James Foreman-Peck and Jürgen Müller, *The Spectrum of Alternative Market Configurations in European Telecommunications* (Berlin: Deutsches Institut Für Wirtschaftsforchung, 1988), pp. 23-51; Jürgen Müller, "Telecommunications in the European Internal Market," *Intereconomics* (November/December) 1988, pp. 268- 272; Department of Commerce, *U.S. Telecommunications in a Global Economy: Competitiveness at a Crossroads* (August 1990), pp. 112-119; and Gary Stix,"Telecommunications," IEEE Spectrum (June 1990), pp. 25-26.

alternative long-distance services in the United States, which are now constrained by the high rates the telecommunications authorities can charge for such lines.)

Furthermore, the telecommunications authorities are to be reorganized to ensure that there are no cross-subsidies between those areas in which they retain a monopoly and the area open to competition. Most notable in this latter category is the terminal equipment market, which is to be opened up completely to competition. The central-office switching and transmission market is also to be gradually opened by regulations regarding government procurement, although there will be a requirement of at least 50 percent EC content. The EC also supported the creation of a single telecommunications standards institute to develop Communitywide standards.

The EC countries are embracing different parts of this reform package with varying levels of fervor. With some exceptions, the battle lines split northern countries from southern ones. Northern countries, such as Germany, the United Kingdom, and the Netherlands, favor more liberal trading rules. France, Italy, Spain, and Belgium form the opposition. The European Commission has tried to constrain these battles. In essence, it recognized that the political and economic power of the state monopolies had to be curbed, both in countries with more open trading systems and in those with more restrictive laws and practices. A system of rules has been put into place that in theory leaves one of two alternatives for those who favor greater restrictions on trade and competition. Through the political process, they can attempt to shift the EC consensus in the direction of EC-wide rules that allow greater restrictions on trade and competition. Alternatively, they can oppose EC-wide rules, in which case they may have to accept even more liberal trading rules forced upon them by EC rulings and binding directives.[40] Whether the Commission will have the strength to enforce its own rules is as yet unclear. Already some aspects of policy are being juridically challenged by member countries

40. For instance, under the principle of "mutual recognition," telecommunications firms based in the United Kingdom, which has a liberal regime, would be subject to UK technical regulations, not French, when operating in France, unless there is an EC-wide regulation that supersedes both French and British rules. Similarly, German firms would operate under German rules, and so on for all member countries. Cowhey, "Telecommunications," in Hufbauer, *Europe 1992*, pp. 193-196.

of both factions, and there have been delays in implementing regulatory changes.

This array of policies would seem to benefit U.S. telecommunications firms even if some are more able to take advantage of these changes than others. All U.S. firms will gain from common EC standards and tests in having one set of published standards to target, even if U.S. firms do not play major roles in setting them. Furthermore, since EC members have agreed to accept each other's test data, costly certification procedures do not need to be repeated for each market.

Effects on U.S. Producers

Despite these changes, U.S. exports may not rise substantially. First, the EC market is already open to a large degree. Second, the major traditional U.S. exporters of telecommunications equipment who make transmission and switching equipment do not seem well positioned to gain in this market because the U.S. market is now fragmented and does not serve well as an export base. Moreover, the traditional areas of U.S. strength are not those being most liberalized. Finally, the EC content rules for central-office equipment may prevent U.S. firms from further penetrating this market.

The U.S. firms most set to gain are those that have targeted the growth areas, such as equipment other than for switching and transmission, and value-added services of various sorts. While not strong in the former, U.S. firms are acknowledged leaders in the latter areas, which include data transmission services, cellular networks, and leased long-distance networks. Gains in service markets, however, are to some extent being held hostage by the terminal equipment markets, which are dominated by Japanese firms, especially in lower-cost, less sophisticated products. If the liberalization of the telecommunications markets results in a flood of Japanese imports (or if the Japanese government does not reciprocate the liberalization), there may be pressures in the EC to place new restrictions or to continue old ones. U.S. firms may suffer despite not being the direct target of such efforts.

Potential U.S. Policies

The U.S. negotiating position at this point is to make the process more transparent and encourage liberalization (either in scope or timing) wherever possible. However, this stance might have some unlooked-for repercussions. Some EC analysts have pointed out that the regional Bell operating companies (RBOCs) are as large as the EC national telecommunications authorities. If the national authorities are to open up their markets, these analysts argue, the RBOCs should also be subject to the same procurement rules that will eventually govern switching and other central-office equipment in the EC. Such symmetry of treatment might also complicate the decision, in the United States, of whether to allow the RBOCs back into the manufacture of telecommunications equipment, which many analysts have advocated as a way of increasing the competitiveness of the U.S. electronics sector.

CONCLUSIONS

By design, this chapter has examined economic effects and issues that vary from sector to sector, so it is difficult to make summary statements about them. In general, however, the effects of the European changes will be small and mixed, but mostly beneficial for U.S. producers and consumers. EC92 will probably bolster the competitiveness of EC-located firms in industries with increasing returns to scale, such as high-technology industries that perform much research and development, and will thereby provide greater competition for U.S. producers and benefits to U.S. consumers. EC92 will also make it easier and less costly for U.S. firms to do business in more than one EC member country. The changes in Eastern Europe will probably increase the European competition for U.S. firms in labor-intensive industries, but will also provide a growing market for U.S. products. For the most part, German unification will combine the effects of EC92 with those of the changes in Eastern Europe, but on a smaller scale.

APPENDIXES

APPENDIX A

THE MODELS AND SIMULATIONS

In selecting the models for simulating the economic effects of a restructured Europe, two primary features were required: the models had to represent many national economies, and they had to assume that many people base their economic decisions on accurate predictions of the future course of the economy. The first requirement--that the models have a multicountry structure, allowing the different economies of the world to interact through trade and financial flows--was necessary because the effects of the recent and ongoing changes in Europe will extend beyond Europe's borders, especially to the United States. The second requirement--that the models entail forward-looking or model-consistent expectations--was necessary because certain aspects of European restructuring have been announced well in advance, and many of the developments so far can best be explained by assuming that economic agents are acting on their predictions of the future effects of the restructuring. By most accounts, the process of restructuring will extend, with further major developments, well into this decade. It was necessary, therefore, to select models that could include the anticipations of economic agents and policymakers regarding the possible outcomes of these events.

DESCRIPTION OF THE MODELS

Two global econometric models were simulated for this study: the McKibbin-Sachs Global multicountry model (version MSG2/E) with an extended Eastern Europe sector; and the Canadian Department of Finance multicountry model, INTERMOD.[1] The models are distinguishable from most other econometric models in their treatment of the linkage between disaggregated country models through world

1. The MSG model is available from Warwick J. McKibbin at the Brookings Institution, Washington, D.C. For INTERMOD, see Guy Meredith, "INTERMOD 2.0: Model Specification and Simulation Properties" (Working Paper No. 89-7, Department of Finance, Ottawa, Canada, 1989).

trade and financial flows, and, more important, in their forward-looking, model-consistent treatment of expectations. They are sometimes referred to as rational expectations models in that economic agents and policymakers are assumed to use information available today (including knowledge of the model structure) to form expectations about what will happen in the future.[2] This section will briefly summarize the structures of both models, emphasizing the importance of their country linkages and treatments of expectations, and then compare the two.

The McKibbin-Sachs Global Model

The MSG2 multicountry model is a dynamic general equilibrium model.[3] The model contains both the short-run and long-run demand and supply sides of the major economies. The demand side of the model for each region is determined by private and public consumption and investment decisions. The supply of aggregate output is determined by the availability and price of labor, physical capital, and intermediate goods. In the long run, supply is determined by the long-run growth of the labor force, technical progress, and the size of the physical capital stock resulting from short-run investment decisions in the economy. The model is annual in frequency.

An important feature of the model is its careful accounting of the cumulation of assets resulting from budget deficits and trade deficits. The model requires that the stocks of assets that accumulate through persistent imbalances between production and expenditure be serviced over time. The requirement that individuals and countries cannot for-

2. A model may only approximate rational expectations, using forward-looking equations based on formulations using less than the full model structure. The advent of simulation programs that force the forward-looking variables in the model to be consistent with the future implications of the full model led to the use of the term "model-consistent" expectations. See Richard Haas and Paul Masson, "MINIMOD: Specification and Simulation Results," International Monetary Fund, *Staff Papers* (1986).

3. For the specification and properties of the version of the MSG2 model used in this paper, see Warwick J. McKibbin and Jeffrey Sachs, "The McKibbin-Sachs Global Model," Brookings Discussion Paper in International Economics No. 78 (Washington, D.C.: Brookings Institution, 1989). For an analysis of the predictive performance of the model during the 1980s, see Warwick J. McKibbin, "The World Economy 1978 to 1988: Results from the MSG2 Model," Brookings Discussion Paper in International Economics No. 72 (Washington, D.C.: Brookings Institution, 1989).

ever consume more resources than they produce is important because the asset prices and international rates of exchange in this model adjust so that this constraint is met. The model incorporates a number of financial markets, such as share markets and markets for short and long bonds, in each of the industrial regions. Prices in these markets are determined by current and expected future paths of the economy. The use of forward-looking expectations throughout the model means that the effects of anticipated policy changes are well handled.

In the version used in this study, the model consists of the United States, Japan, Germany, the rest of the European Monetary System countries (denoted REMS), the rest of the OECD countries, non-oil developing countries, Eastern European Economies, and oil-exporting countries.[4] For the simulations in this study, the European Community is represented by the model's Germany and REMS sectors, the German sector is expanded to simulate German unification, and the newly incorporated Eastern Europe sector (which excludes eastern Germany) is used to simulate capital transfers to that region by the developed economies in the model.

The Eastern Europe region was constructed specifically for this study. Several assumptions were made. First, the current account of Eastern Europe's balance of payments was assumed to be constrained by outside developments such as the availability of finance. Given the level of exports, the flow of resources under this constraint has to be allocated between servicing the existing stock of hard-currency external debt and purchasing imports. Demand for Eastern European goods by each of the other regions in the model was assumed to have unitary income and price elasticities. Demand by Eastern Europe for foreign goods was determined by the amount of external financing and the relative price of foreign goods. The details of the other features of the model are discussed in the cited references.

4. This REMS block consists of Belgium, Denmark, France, Ireland, Italy, and Luxembourg. The ROECD block consists of Australia, Austria, Canada, Finland, Iceland, Norway, Spain, Sweden, Switzerland, the United Kingdom, and New Zealand. The LDC, EUROPE, and OPEC blocks are based on the groupings in the International Monetary Fund's *Direction of Trade Statistics*.

The Canadian Department of Finance Model, INTERMOD

INTERMOD was developed by the staff of Canada's Department of Finance, (based on the International Monetary Fund's model, MULTIMOD). The demand side of the model's treatment of each national economy is consistent with the familiar national-income-accounting identity and has separate behavioral equations for consumption, investment, and the components of the trade balance, while real government expenditures are an exogenous policy variable. The supply side of the model, which determines potential output for the various model sectors, is based on time trends to represent the long-run growth of the labor forces and technical progress in different economies, along with short-run investment in those economies, which determines the size of the capital stock. Like the MSG model, INTERMOD is an annual model.

The model has explicit representations of the economies of Canada, the United States, Japan, Germany, the United Kingdom, France, and Italy. In addition, it incorporates three blocks of smaller economies: the smaller industrial countries, capital-exporting developing countries, and other developing countries.

Differences Between the Two Models

The most important difference between the two models is that MSG2 imposes long-run intertemporal budget constraints for both domestic and international debt, while INTERMOD does not. This means that, regardless of the type of shock imposed, the MSG model assumes that national policies will change over the long term in order to ensure that the ratios of government and national debt to national income do not rise too far. Without such constraints, a forward-looking model may target an inappropriate long-run path, and the near-term dynamic paths of key endogenous variables will not be reasonable

Although the two models differ significantly in structure and design, CBO assumed that they will achieve the same long-run state equilibrium. This involved imposing the MSG2 long-run outcomes for key variables on the INTERMOD solutions where appropriate.

THE ESSENCE OF THE DEVELOPMENTS IN EUROPE

All three developments in Europe affect the "supply side" of the European economies and enhance their productive capacities. In both of CBO's econometric models, the supply side is captured by equations that describe how capital, labor, and other factors of production are combined to produce goods. One way that the production process can be written mathematically is:

$$(1) \qquad y = \theta + \alpha^{*}k + \beta^{*}l + \gamma^{*}e + \delta^{*}i$$

where y is output, l is labor, k is capital, e is energy, and i is other intermediate inputs (all expressed in logarithms). Total-factor productivity--the amount of output produced per unit of input--is measured by the parameter θ.

Despite their overall similarity, the three economic developments in Europe involve different types of changes to the supply side. The EC92 program involves an increase in the productivity of all of the factors of production--capital, labor, energy, and other intermediate inputs--and is imposed through an exogenous increase in θ in equation (1). The merging of East Germany into West Germany raises the quantities of capital and labor available to West Germany, and is represented by changes to k and l. German unification also involves changes on the demand side of the German economy, but the modeling of these changes is conventional.

The emergence of Eastern Europe is much more difficult to model, because it involves the building of an entirely new production process, the form of which is unknown. Because of these problems, CBO used a different approach--one that focuses on the capital requirements of Eastern Europe. Although the simulations did not include any changes in production for Eastern Europe over the 10-year simulation period, such an omission is unlikely to create large biases, since Eastern Europe is currently such a relatively small part of the world trade block.

As mentioned previously, it was only possible for CBO to alter these models with representative shocks to simulate the macroeco-

nomic effects of European restructuring. The following sections discuss the shocks imposed on the MSG2 model and, where applicable, on INTERMOD. Not all simulations could be replicated by INTERMOD, mainly because it was not possible to devise long-term budget constraints analytically for some of those scenarios in this model.

THE EC92 SIMULATIONS

All of the EC92 simulations incorporated certain assumptions about productivity and monetary policy. CBO drew its measure of the increase in total-factor productivity that can be expected from European integration from estimates prepared by the Secretariat of the European Commission.[5] On the basis of a detailed microeconomic study, the Secretariat's report suggested that the integration program would increase total-factor productivity in the EC countries by 4.65 percent relative to baseline levels; the Secretariat's estimates of the contributions to this total from different parts of the integration program were as follows (in percentages of the baseline level):

Removal of Customs Barriers	0.26
Opening of Public Procurement Markets	0.50
Restructuring of Financial Markets	0.65
Supply Effects	3.24
Total	4.65

Since the models used by CBO were unable to incorporate the effects of restructuring financial markets, this component was omitted from the assumed increase in productivity. Accordingly, CBO's simulations were based on an increase of 4.00 percent (4.65 minus 0.65) in total-

5. A summary of the macroeconomic methodology used for the EC's EC92 simulations is found in Michael Catinat, Eric Donni, and Alexander Italianer, "The Completion of the Internal Market: Results of Macroeconomic Model Simulations," Commission of the European Communities, Economic Papers No. 65 (September 1988). The more detailed description of how the simulations were performed is found in Catinat and Italianer, "Completing the Internal Market: Primary Microeconomic Effects and Their Implementation in Macroeconometric Models," Commission of the European Communities (March 1988).

factor productivity among the countries of the European Community. The increase was phased in gradually as shown in Table A-1.

In all the EC92 simulations, CBO assumed that monetary authorities in the EC countries would increase the level of national money supplies 1 percent higher than in the baseline. CBO also assumed that non-EC economies followed a fixed money-growth rule.

The Simulation Assuming Neutral Fiscal Policy

In the first simulation, governments of the EC countries were assumed to hold the ratio of the deficit or surplus in the general government budget to GDP constant at baseline levels. In the MSG model, this was accomplished by allowing government expenditures to change sufficiently to keep the budget deficit or surplus at the baseline level.

The Simulation Assuming "High-Saving" Fiscal Policy

As an alternative, governments of the EC countries were assumed to allow the deficit to decline in relation to GDP by holding the ratio of general government expenditures to GDP constant. This allowed the ratios of receipts and of the deficit to GDP to fluctuate with changing incomes.

TABLE A-1. CHANGES IN EXOGENOUS VARIABLES UNDERLYING CBO's SIMULATIONS OF EUROPEAN INTEGRATION (EC92) (In percentage-point changes in ratios to baseline gross domestic product)

Variable	1990	1991	1992	1993	1994	1995	Later Years
Total-Factor Productivity	0.0	0.5	1.0	2.0	3.0	4.0	4.0
Money Supply	1.0	1.0	1.0	1.0	1.0	1.0	1.0

The Simulation Assuming European Protectionism: Constant External Trade

In this simulation, the increase in income resulting from European integration was not allowed to expand trade between the EC and the rest of the world. In particular, imports by the EC countries from outside the Community were held at the same ratio to the source-country GDP that they accounted for in the baseline. All increases in imports by individual EC countries were assumed to come from other EC countries. Fiscal policy in the EC countries was assumed to conform to the "neutral" pattern described above.

The Simulation Assuming European Protectionism: Decreased External Imports

In this simulation, protectionism in the European Community was assumed to be severe enough to reduce EC imports below baseline levels. In particular, the ratio of imports by the EC countries from outside the Community to destination-country GDP was reduced below baseline levels by one percentage point. All increases in imports by individual EC countries were assumed to come from other EC countries. Fiscal policy in the EC countries was assumed to conform to the "neutral" pattern described above.

TABLE A-2. CHANGES IN EXOGENOUS VARIABLES UNDERLYING CBO's SIMULATIONS OF GERMAN UNIFICATION
(In percentage-point changes in ratios to baseline gross domestic product)

Variable	1990	1991	1992	1993	1994	1995	Later Years
Labor Force	30.0	30.0	30.0	30.0	30.0	30.0	30.0
Money Supply	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Wage Rates	-5.0	a	a	a	a	a	a
Capital Stock	15.0	a	a	a	a	a	a

a. Determined by the model equations.

THE GERMAN UNIFICATION SIMULATIONS

CBO treated German unification as a sudden increase in the capital stock, the labor force, and the money supply in the former West Germany. In addition, German wage rates were reduced to reflect the fact that people in eastern Germany are paid less on average, and the budget deficit was increased. CBO changed the initial (1990) values of wages and the capital stock (see Table A-2 on page 136). In 1991 and later years, the levels of both variables were determined by the model equations. In addition, CBO assumed that other countries maintain a fixed growth of money and a fixed ratio of government expenditure to simulated GDP.

In the simulation in which the German government was assumed to finance the budgetary costs of unification through borrowing, the government deficit was assumed to increase by upwards of 5.0 percent from baseline levels in the first two years, and the increase was as-

TABLE A-3. ALTERNATIVE ASSUMPTIONS ABOUT GERMAN GOVERNMENT DEFICITS (In percentage-point changes in ratios to baseline gross domestic product)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Bond-Financed Spending											
Deficit	4.0	5.0	4.7	4.4	4.1	3.0	3.5	2.9	2.6	2.3	2.0
Taxes Less Transfers	1.2	1.5	1.6	1.6	1.6	1.7	1.7	1.7	1.7	1.7	1.7
Tax-Financed Spending											
Deficit	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Taxes Less Transfers	0.3	0.5	0.6	0.7	0.8	0.9	1.0	0.9	0.9	0.8	0.8

sumed to decline gradually, as shown in Table A-3 on page 137.[6] In the simulation in which government spending for unification was assumed to be financed through increased taxes, CBO assumed no increase in the deficit.

EASTERN EUROPE SIMULATION

CBO assumed that new capital inflows to eastern Europe would amount to roughly $20 billion annually, using estimates provided by Bosworth of the Brookings Institution (see data below).[7] Accordingly, the constraint on the deficits in the current account of the collective balance of payments of Eastern Europe was relaxed sufficiently to allow this additional inflow permanently. The funding was assumed to be from private capital markets with the initial contributions made in proportion to each country's trade with Eastern Europe

Additional Capital Inflows to Eastern Europe Assumed in CBO's Simulation
(In percentage-point changes in ratios to baseline gross domestic product)

1990	0.15
1991	0.3
1992	0.3
1993	0.3
1994	0.3
1995	0.3
1996	0.3
1997	0.3
1998	0.3
1999	0.3
2000	0.3

6. This fiscal stimulus assumption is consistent with that assumed in Commission of the European Communities, *Economic Forecasts 1991-1992* (Brussels, 1990), Table 21.

7. Barry Bosworth, *Managing Current Account Imbalances* (Washington, D.C.: Brookings Institution, September 1990).

APPENDIX B

IMPLICATIONS OF GERMAN UNIFICATION FOR THE EUROPEAN MONETARY SYSTEM

German government policies are likely to have significant implications for the attainment of the European Community's goals and for United States trade with the Community, creating a need for currency realignments within the European Monetary System (EMS). (At present, the EMS holds the exchange values of its members' currencies fixed in relation to each other.) Even more significant are the implications of German policies for the Community's plan for an eventual European Monetary Union, which would institute a single currency for use by all member countries. Currency realignments within the EMS could delay attainment of such a union. In any case, the process of German unification could hold important lessons on the future need for real exchange-rate adjustment in general among different blocs of countries in the European Community--a need that is not the consequence of German unification per se--in order to achieve a workable EC92.

If German interest rates go much higher, capital flows from other countries in the European Community could force realignment among the currencies, with the deutsche mark appreciating against the others. In fact, realignment may be necessary in order for Germany to attract investment from the other countries in the Community. Capital cannot flow from these countries to Germany on a net basis unless Germany stops running a surplus in the current account of its balance of payments with these countries. But reducing the surplus may be possible only if the deutsche mark appreciates with respect to these countries' currencies. If flows of capital from the rest of Europe do not occur, more capital will have to come from other countries, such as Japan or Taiwan.

Even if future currency realignments among the EMS currencies are avoided, higher German interest rates may have negative implications. Early in 1990, the differential between German and some

other EC interest rates narrowed as these other countries eliminated capital controls and exchange restrictions. It may be impracticable to reduce remaining interest-rate differentials further, because they may reflect differences in withholding taxes on interest income and the riskiness associated with government deficits in some countries. If so, higher German interest rates down the road would push up other EC interest rates, reducing economic growth and raising unemployment in other EC countries. Given the high ratio of public debt to GNP in Italy and other countries, higher interest rates could cause the debt to rise sharply relative to GNP in some countries.

The process of German unification could hold important lessons on the future need for adjustments in real exchange rates among different blocs of countries in the European Community in order to achieve a workable monetary union among its member countries. In some respects, monetary union would be like German currency unification, though it would occur on a larger scale--setting national currencies at fixed conversion rates that would have important economic significance, much as they have in Germany. If conversion rates are not aligned properly at the outset, monetary union could result in a deflationary bias among some EC countries and an inflationary bias among others. Flows of capital or labor might then become so large as to create political problems.

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